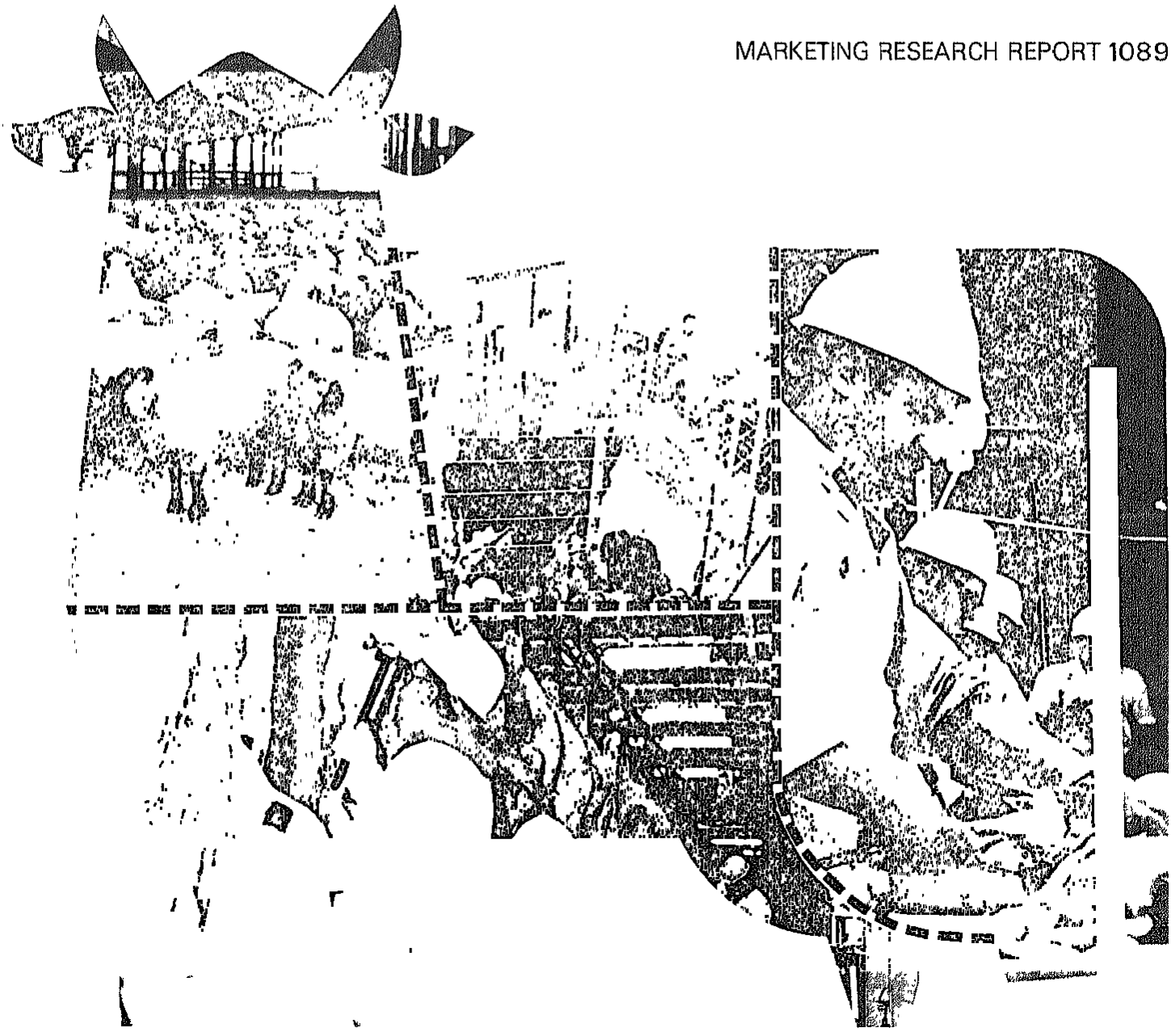
The Future Role of Cooperatives in the Red Meats Industry

MARKETING RESEARCH REPORT 1089



U.S. DEPARTMENT OF AGRICULTURE, ECONOMICS, STATISTICS, AND COOPERATIVES SERVICE

FOREWORD

Livestock producers have been characterized historically by their independent marketing behavior. They've been able to enjoy this luxury of independence because of the role of centralized markets. These markets have served as a reliable source of market information and acted as a buffer between producers and the relatively few buyers of their products.

Structural change has stripped away much of producers' protection. Change has come in the form of increased direct buying, lost local markets, vertical integration, and fewer buyers in packing, wholesaling, and retailing. Increasingly, producers must deal with buyers one-to-one, eyeball-to-eyeball; and with less reliable information and fewer alternatives.

The market power advantage of buyers over producers has become obvious—indeed awesome.

This changed environment has caused producers to look at cooperative marketing as a method to correct their disadvantaged bargaining position. Several groups have asked for guidance from Government agencies (such as the Extension Service and the Economics, Statistics, and Cooperatives Service) and regional cooperatives.

Producers' awareness of their market situation and their interest in exploring alternatives is an encouraging development. It is an initiative for change that calls for careful evaluation of alternative courses of action for livestock producers.

This report evaluates changes in the structure of the red meats production and market system. It identifies possible organizational designs in which producers would have an effective role in this dynamic industry. The report is an initial step by the Department of Agriculture to assess the changes in the economic organization of the red meats industry from the producers' perspective.

Randall E. Torgerson
Deputy Administrator

PREFACE

This study grew out of a concern for the future survival of independent, family-size livestock producers. This concern is rooted in the structural changes that the red meats industry has undergone in recent years that appear to seriously threaten these producers' position in the industry of the future.

Individual livestock producers cannot do much on their own to counter these developments. However, effective use of cooperatives could give producers the collective resources to respond favorably to the changing structure. The relatively minor role cooperatives now play in the industry would have to be expanded and, perhaps, changed if producers are to use them to achieve a significant degree of influence over the red meats industry.

Randall E. Torgerson, Deputy Administrator of Economics, Statistics, and Cooperatives Service (ESCS), U.S. Department of Agriculture, with the concurrence of the Director of Agricultural Economics, appointed a special task force to examine the future role of cooperatives in the red meats industry. This task force drew upon expertise from several USDA agencies and a land grant university. The task force members who conducted this study are:

John T. Haas, ESCS, Chairman
Richard J. Crom, ESCS
Leonard W. Condon, Food Safety and Quality Service
David L. Holder, ESCS
Winston K. Ullman, ESCS
Richard H. Vilstrup, University of Wisconsin
David Volkin, ESCS

CONTENTS

HIGHLIGHTS

Structural changes in the red meats industry are threatening the survival of independent, family-size livestock producers.

Economic forces beyond their control are endangering their livelihood despite the fact that they own livestock longer than any other market participant and contribute the most value to the end-result red meats products. Structure trends are reducing producers' market access, weakening their market power, and further eroding the livestock pricing system.

Livestock producers could counteract these trends and improve their market position through more extensive use of cooperatives.

Livestock producers might use cooperatives in any one of several industry roles. These roles need not be mutually exclusive. Given producers' desires to have farm gate values established for their raw products, producers should consider using cooperatives to market live animals by means of a centralized electronic exchange. A lack of buyers in some market situations might make bargaining a more viable alternative. New legislation probably would be required for either of these alternatives to be successful.

Substantial integration or greatly increased buyer concentration could make cooperative meatpacking a better alternative if producers are willing to make a sizable commitment of risk capital and livestock production. Producers need to be very cautious when considering entry into meatpacking because it is a high-risk, capital-intensive, low-profit business that requires large scale operations to provide for operating efficiency and effective marketing.

These conclusions come from analyzing the structure of the red meats industry and projecting future trends in industry structure and conduct.

The structure of the red meats industry is changing rapidly. Fewer of the Nation's farmers are producing livestock, but on the average they are producing more per farm. While most livestock farms still produce only a few head, the majority of livestock is produced by just a few farms. Only 7 percent of farms selling cattle and calves, 20 percent of farms selling hogs and pigs, and 7 percent of sheep and lamb farms accounted for about 50 percent of 1969 sales of each type. Only 1 percent of the cattle feedlots marketed two-thirds of the fed cattle in 1976.

Livestock was marketed through 31 terminal markets, 1,604 auctions, and 6,888 livestock dealers in 1975. Most auctions and livestock dealers handled only a small volume. Producers are selling increasingly more livestock direct to packers and through country points rather than on terminal markets. From 1930 to 1975 packers' purchases at terminals declined from about 80 percent to 15 percent while their purchases direct and through country dealers increased from about 20 percent to 70 percent. Auction purchases have been fairly steady at about 15 percent since 1960.

The meatpacking industry is highly concentrated at the State level and is becoming more concentrated. For example, in the 25 largest cattle feeding States the four largest firms accounted for 63 percent of fed cattle slaughter in 1975. In the 12 major hog States the top four packers accounted for 77 percent of hog slaughter. This concentration of buyers results in a slaughter livestock market that is not perfectly competitive.

Cooperatives have been a part of the red meats industry structure for many years. Yet in 1975 all marketing and meatpacking cooperatives combined handled only 12 per-

cent of all cattle and calves sold, 16 percent of hogs and pigs, and 15 percent of sheep and lambs. Cooperative meatpacking alone accounted for only 1 percent of cattle and 2 percent of hogs slaughtered. However, cooperatives were a major factor in some areas; they handled 30 to 59 percent of all livestock marketed in seven States.

Livestock producers have invested relatively little capital in a cooperative marketing system. Marketing cooperatives had total assets of about $102 per member in 1975 and meatpacking cooperatives had total assets of about $5,200 per member. Producers net worth in marketing cooperatives was about $40 per member, whereas their net worth in meatpacking cooperatives was about $1,400 per member.

Earnings in meatpacking as a percentage of sales, assets, and net worth show that meatpacking is only a moderately profitable industry. But meatpacking cooperatives' performance record shows them to be significantly behind the industry. Net savings of five meatpacking cooperatives for 1971-75 averaged only 1 percent of net worth compared with average before-tax earnings by all industry firms of 18 percent.

Barriers to entry into the livestock marketing business generally are not as great as for entry into meatpacking. The significant barriers to entry of new firms into meatpacking are the economies of size in slaughter-processing plants, large capital requirements, a high degree of product differentiation in processed products, and high risk.

Analysis of industry trends indicates that in the future there likely will be fewer but larger producers, more direct sales of slaughter livestock, and more concentration in meatpacking with the resultant fewer buyers. These trends will intensify the problems of pricing accuracy and market access for producers. Several alternative future roles for cooperatives are suggested.

One alternative is for cooperatives to develop and operate a marketing system that would maintain open competition among livestock buyers and ensure producers access to the market. To be effective this marketing system probably should utilize a centralized electronic exchange, such as a teletype auction or computerized exchange. A centralized electronic exchange established under proper conditions could maintain an open, competitive market and guarantee producers market access and a voice in establishing the terms of trade.

The open market role might be achieved through a voluntary cooperative or through a producer-controlled marketing board. Either approach would require strong commitment from producers and probably new legislation to require that all major slaughterers buy through a cooperative exchange or to establish a marketing board.

Second, a producers' bargaining association could be a means of improving returns to producers by increasing their market power. The association could negotiate higher prices and better terms of trade with packers on behalf of its members. Price premiums might also result from improved producer-packer coordination and efficiency.

Bargaining is likely to be most successful in market situations where there are few buyers or in a contract production environment. However, successful implementation of bargaining probably would necessitate new legislation to facilitate certification of approved producers' associations and to require all major slaughterers to bargain in good faith with certified associations.

As a third alternative, cooperatives might consider coordinating all the stages of a production-distribution system. This might be done through cooperative ownership of certain facilities or by means of custom contracts with producers, feeders, meatpackers, and others. In contrast to owning and operating its own facilities, contracting could permit the cooperative to control the system with a much smaller capital investment and risk of loss.

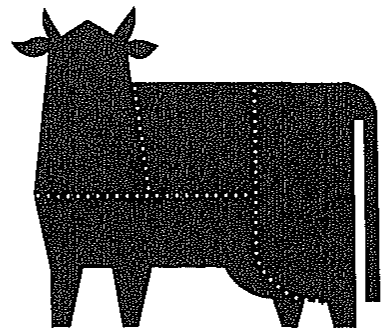
A fourth alternative is for cooperatives to enter meatpacking. Cooperative meatpacking could guarantee producers a market for livestock, extend their control closer to the consumer, and improve total production-distribution coordination and efficiency.

The opportunities, problems, and requirements for achieving a cooperative role in slaughtering, processing, and distribution are much the same as those associated with such enterprises when operated by proprietary firms. Because of the high degree of risk in meatpacking, cooperatives need to give careful attention to a number of considerations bearing on success before they enter the industry. Among these considerations are:

1. Producer commitment of livestock and capital.
2. Optimum plant location.
3. Optimum plant and firm size.
4. Processing operations as well as slaughtering operations.
5. Capital requirements.
6. Method of entry.
7. Organization of the meatpacking enterprise as part of a regional cooperative.
8. Organization of the cooperative meatpacking sector. Cooperatives could form an interregional meatpacking cooperative in any one of a number of ways to marshal greater capital resources; spread risk; and achieve greater economies of size in processing, market development, and distribution.
9. Utilizing existing livestock marketing cooperatives in procurement.
10. Achieving producer input and control.

Meat retailing has received considerable attention in recent times as an alternative for livestock producers. The opportunities for cooperatives to successfully engage in meat retailing appear to be limited to a few local situations.

The Future Role of Cooperatives in the Red Meats Industry



Meat is central to the American diet, and livestock sales account for the largest single source of cash income for U.S. farmers. In 1975, $25.8 billion worth of livestock was sold, accounting for 29 percent of total cash receipts from farm marketings.

Although livestock accounts for a major source of their income, U.S. farmers have used cooperatives only sparingly to help them market their livestock more effectively. The Bureau of the Census reported that in 1974, 1.6 million farms sold some kind of livestock. In the same year livestock cooperatives had an estimated 698,000 farmer memberships. In other words, about 40 percent of the livestock producers were members of a cooperative devoted to marketing livestock. The picture probably is little different today.

While cooperatives have about two-fifths of the livestock producers as members, they market, either live or as meat, only 13 percent of the livestock produced in the United States. They slaughter and process only a small percentage of the cattle and hogs and virtually no sheep and lambs. It is evident, therefore, that producers are not making extensive use of cooperatives to market their livestock.

Structural changes in the red meats industry in recent years have major implications for livestock producers. Increased specialization in production makes both primary producers and livestock finishers more dependent on a marketing system that is presently highly fragmented. More and more livestock is moving directly from producer to slaughterer, bypassing traditional marketing channels. Many producers, however, are in a weak bargaining position in dealing directly with slaughterers. Public price reporting has become more difficult and those prices that are reported are based on a relatively small number of market transactions. At the same time, the livestock buying side of the slaughtering industry has become more concentrated, with only four firms slaughtering the bulk of the livestock in many States. Consequently, producers' access to markets has diminished in many areas and their degree of market influence is limited.

As a result of these changes, it appears that producers must act collectively to secure a more significant future role in the industry. Therefore, this study was undertaken to examine the trends in structure and conduct in the red meats industry and to project the future role of cooperatives. The purpose of this study is to help livestock producers understand how cooperatives can help them integrate into the marketing system and solve their marketing problems. It also seeks to provide guidelines for making the organizational and operational adjustments necessary to implement an effective and efficient plan of action to meet producers' needs in the future. The scope of the study was limited primarily to the role cooperatives could play in providing services for slaughter livestock producers in moving their product from the farm to the consumer.

OVERVIEW OF THE RED MEATS INDUSTRY

The red meats industry encompasses a variety of activities in the production and marketing of beef, pork, lamb, and veal. These include farming and ranching, live animal marketing, slaughtering, processing, wholesaling, retailing, and food service. The industry is composed of thousands of farms and other firms involved in either the production of animals or the conversion of those animals into consumer-ready meat products.

Meat industries

Beef

The beef industry is the largest and most complex of the meat industries. Calves for meat production come from both beef-type and dairy-type cows. While some calves are retained for replacing cows and bulls in breeding herds, the majority of beef calves and many dairy calves are fed various combinations of forages and grains to produce meat. Many dairy-type calves are slaughtered at light weights to produce veal. Veal is typically considered a separate industry because of its distinctly different product. Hence, it will be discussed later. The consumption of beef (excluding veal) has been increasing. Americans consumed 63 pounds (carcass weight) per person in 1950, 85 pounds in 1960, 114 in 1970, and 129 in 1976.

Beef calves and some dairy calves (steers and heifers) usually are grown on forages until they weigh 550 to 750 pounds and then fed a high proportion of grains and concentrates until they weigh 900 to 1,100 pounds. These animals typically produce high quality beef which would qualify for the USDA Good, Choice, and Prime grades. Some producers have integrated the three basic production stages for fed beef. They produce the calves, grow them, and finish them. Other producers are more specialized, restricting their activities to calf production, growing, or feeding.

The majority of fed beef is sold through retail food stores, but another large outlet is the "tablecloth" restaurant trade. Rising consumer incomes have increased the demand for fed beef. Hence, the share of fed beef in the total beef supply increased from 50 percent in 1950 to 77 percent in 1972 and 1973. Unprofitable cattle feeding conditions since 1973 led to a reduction in the share of fed beef to 52 percent in 1975. While the trend is upward, it is still subject to cyclical factors.

Some calves are slaughtered at 500-700 pounds without ever reaching the finishing stage. These calves normally comprise the bulk of nonfed steer and heifer beef production. However, at times some cattle are fed on forages to slaughter weights of 900-1,100 pounds.

The percentage of nonfed steers and heifers varies with economic conditions in the beef industry. For example, in 1973, only about 3 percent of the total steer and heifer slaughter was nonfed, compared with an estimated 25 percent in 1975 and 19 percent in 1976. The large increase in nonfed beef production in the last few years has caused it to take a more prominent place in retail meat cases, selling alongside fed beef at a small discount in price.

Cull cows and bulls from dairy and beef herds are also part of the beef supply. Cow meat is used in a number of ways. The "better cuts," such as loin steaks, are sold in fast-food steakhouses. The rest of the carcass (and sometimes the whole carcass) is boned out. Boneless cow beef may be combined with fed beef trimmings and ground to make hamburger for fast-food restaurants. Or, it may be sold to other processors or retail

supermarkets for use in making hamburger or other processed products. Boneless cow beef and most bull meat also is mixed with fed beef or pork trimmings to produce a large variety of sausage products, such as wieners, bologna, and luncheon meats.

Cow beef is important to the industry because it is a major source of hamburger or ground beef. In 1976, about 40 percent of all beef was sold as hamburger or ground beef. By 1985 as much as 60 percent could be sold this way.[1]

Veal

Veal is a byproduct of the dairy industry and is produced from young dairy calves. Some calves are slaughtered within a few days of birth; others are fed a special milk replacer diet for 6 to 8 weeks before slaughtering. At time of slaughter, veal calves generally weigh less than 350 pounds. The meat is characterized by its pale pink, almost white, color. Veal is sold through retail and food service outlets. The trend in production has been downward as fewer dairy calves are produced and more of the calves that are produced are being fed to heavier weights for production of beef. As a result, veal production and consumption has been trending downward. Consumption per capita was 8 pounds in 1950, 5 in 1960, 3 in 1970, and 4 in 1976.

Pork

Most pork is produced in farrow-to-finish operations on the same farm. However, an increasing share is being produced by farmers who specialize in feeder pig production or pig finishing. Most hogs are finished in confinement on concentrated rations. The finished hogs and cull sows are converted into a variety of fresh and processed pork products. A much larger proportion of pork than beef is processed rather than sold in fresh form. The products are distributed through retail and food service firms. Unlike beef, pork has had only a minor part in the fast-food restaurant explosion. This is one reason why pork consumption has remained fairly constant over the last 35 years at 60 to 70 pounds per capita.

Lamb and Mutton

Lambs are raised in small farm flocks throughout much of the country and in large range operations in the Mountain States and Texas. Lamb production is quite seasonal, but different regions come into production at different times. Most lambs are born from January through May. These "spring lambs" receive little or no concentrated feed and are ready for slaughter from April through October. About half the lambs require additional feeding to get them to slaughter weight and condition. This usually is done by specialized lamb feeders. Fed lambs are marketed from November through March of the next year, helping to spread the supply of lamb meat more evenly over the year. Lamb meat is sold through retail food stores and higher quality food service establishments. Most cull ewes are slaughtered from May through November and the mutton meat is sold in processed form, such as soups and stews, and added to sausage containing a high proportion of beef or pork.

Consumption of lamb is concentrated among several ethnic groups living in major metropolitan areas. Average per capita consumption for the entire Nation has been

[1]Ross, William G., Jr., U.S Has Become a "Hamburger Society." The National Provisioner, Dec. 18, 1976, Chicago, Ill p. 36.

declining rapidly as production has declined. In 1950, each person consumed an average of 4 pounds (carcass weight) of lamb and mutton, 5 in 1960, 3 in 1970, and 2 pounds in 1976.

Marketing Functions

Several marketing functions are common to all types of livestock and meat products, and one firm will usually provide a function for more than one species of livestock. The marketing functions include all activities beyond production: marketing of live animals, slaughtering, processing, wholesaling, retailing, and food service.

Live Animal Marketing

Meat animals are produced on a large number of relatively small farms and ranches. Some are fed in a smaller number of large feedlots, and all are processed in a much smaller number of packinghouses. Hence, there is a need to bring sellers and buyers together—physically or through communications—to arrive at a price at which ownership will be transferred and to facilitate the movement of livestock to buyers.

The basic methods of marketing livestock are through terminal and auction markets and by direct and country sales. Terminal markets are the oldest form of organized livestock marketing. The basic method of sale is by private treaty—direct negotiation between commission agent and buyer. In recent years, however, most major terminal markets have begun selling livestock by auction—principally feeder animals—on one or more days a week and this has become an important method of sale.

Auction markets are more numerous than terminals and are scattered throughout the producing areas close to the farm. These marketing firms provide their selling services on a commission basis and sell livestock by the auction method to buyers present at the market. They usually hold regular auction sales at least one day each week.

The teleauction is a variation of the auction method that has come into use since the mid-1960's. Livestock is sold by auction over a conference telephone network with buyers located in their offices or at other distant points. Another variation is the special auction sale held once or a few times a year for feeder livestock, particularly cattle and calves, and pigs.

Direct and country sales methods are popular among livestock producers, especially producers of slaughter animals. Under these methods livestock bypasses the public market channels and price usually is established by private treaty. Producers sell slaughter livestock direct to salaried packer buyers at the farm or feedlot, or at the packer's plant or buying yards. Country sales of slaughter livestock also are made direct to packers through commission agents and packer order-buyers, or to dealers who take title and resell to packers. Some feeder livestock is sold direct to buyers, but most country sales are made through commission agents or order-buyers, or to dealers.

Slaughtering and Processing

The slaughtering function is simply one of converting live animals into dressed carcasses. It often is combined with the processing function, but is carried on separately by some firms.

Processing is a "disassembly" and "manufacturing" function which breaks the carcass down into a number of wholesale or retail cuts and produces a number of manufactured products, often having characteristics distinctly different from the carcass meat.

It is needed to maximize the value of the carcass because different parts have different markets and values. The more tender chops and steaks have a higher value than roasts, for example. Some of the lower valued cuts, as well as trimmings, are usually processed into a variety of sausage items to increase their value and put them in a form acceptable to consumers.

Several types of firms are involved in the processing function. Meatpackers generally slaughter, chill, and break a carcass into quarters. Many firms further fabricate beef carcasses into primals and subprimals, vacuum package these wholesale cuts, and put them in cartons for sale as boxed beef. Retailers break the quarters, primals, or subprimals into final retail cuts. Chainstore retailers often perform much of the processing function at a central cutting plant instead of at individual retail food stores. Specialized processing firms also operate between packers and retailers, especially to manufacture sausage products and produce portion-controlled products for food service firms.

Wholesaling

The wholesaling function is one of selling and distributing meat and meat products to processors, retailers, and food service firms. It often involves merchandising a product line from which buyers, especially retailers and food service firms, can select a product mix or package that meets their needs. For example, a single wholesaler might offer retailers carcass and boxed beef, fresh and cured pork products, carcass lamb and veal, and a wide selection of sausage products. These products meet certain quality and other specifications and are delivered on schedule. In other words, a wholesaler offers both products and service.

The wholesaling function is performed by packers, independent processors, and brokers. In recent years retail food chains, through their central processing and warehousing operations, have taken over many of the functions previously performed by wholesalers.

Retailing

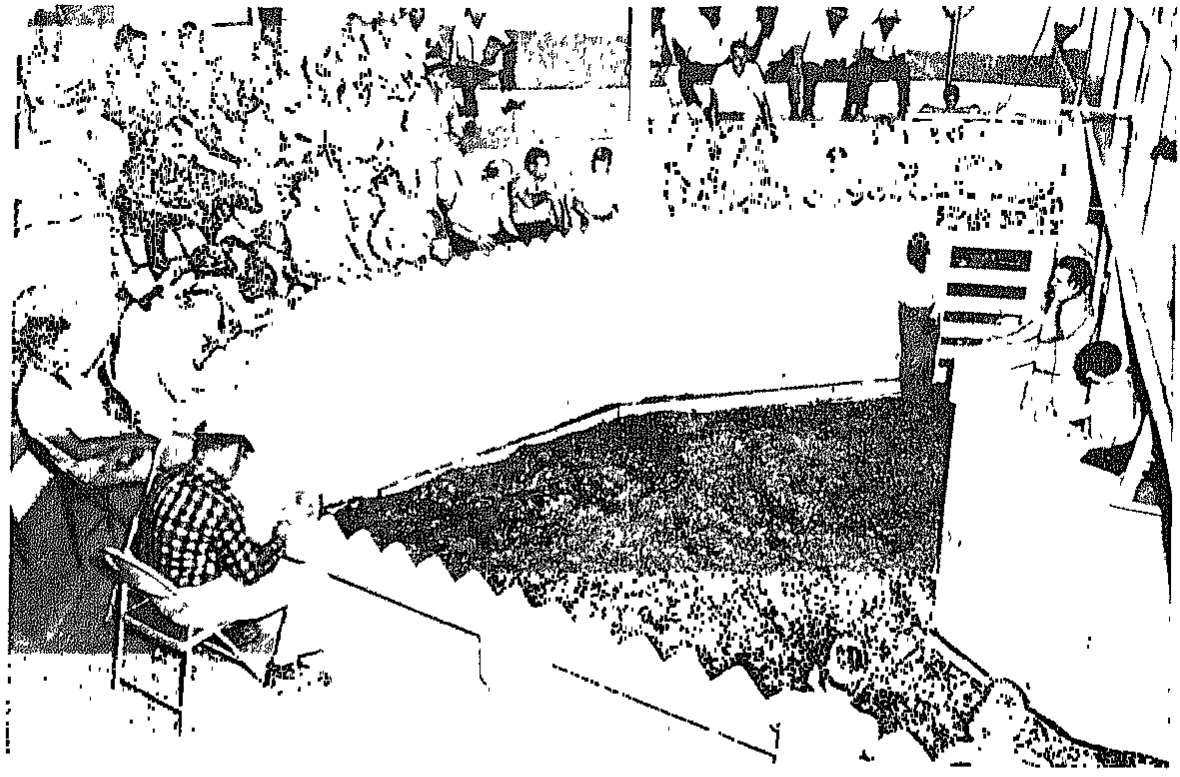
Retailing is the function of merchandising meat and making it available to consumers, primarily for home consumption. It is estimated that approximately 65 percent of all beef and 80 percent of pork is sold by retail stores.

Because meat is only one of several products desired by consumers on a regular basis, most retail stores sell a wide array of types and brands of products—meat, cereals, fruits, vegetables, and many non-food items. Nevertheless, some meat is still retailed through specialized meat stores.

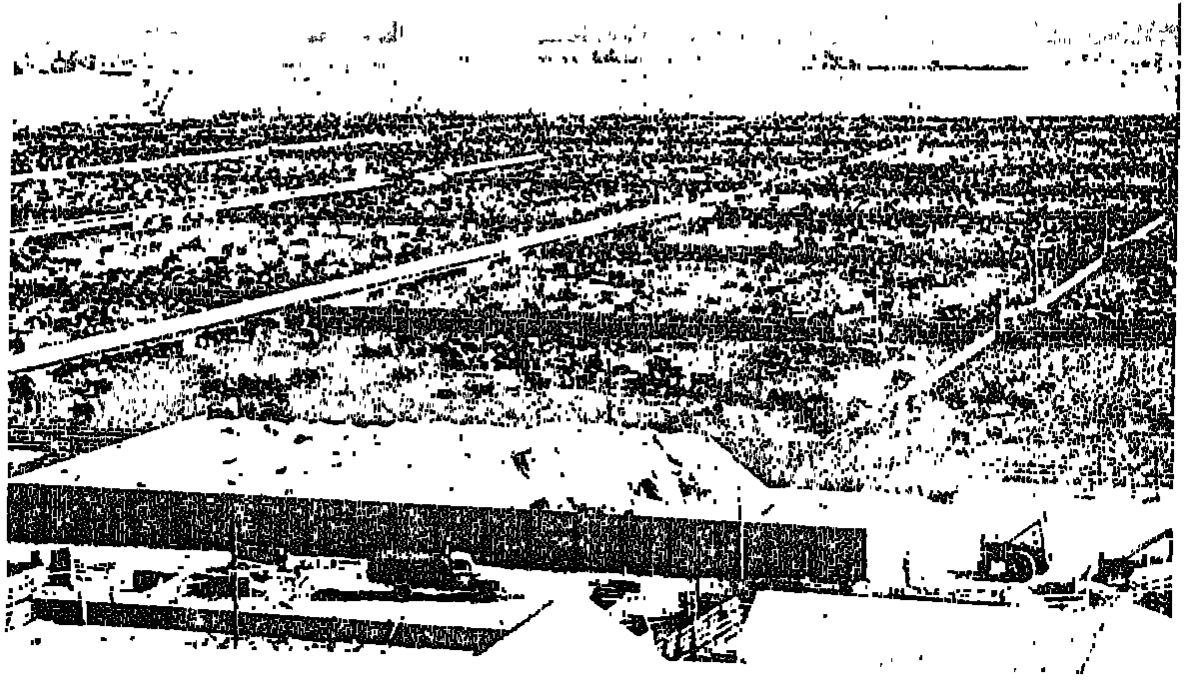
Food Service

Food service includes "tablecloth" restaurants, fast-food restaurants, schools, hospitals, and other institutions; military installations and airlines and other complimentary meal services. Meat is usually the featured menu item. It is complemented by other foods and particularly by service and esthetic factors to provide a much different mix of products and services than provided by retailers.

Food service sales are growing rapidly because of more meals eaten away-from-home and added services. Food service firms sell about 35 percent of the beef and 20 percent of the pork consumed. They also sell veal and lamb.



The teleauction, a variation of the auction method of sale, was the earliest form of centralized electronic exchange in the United States. Here, in an early Virginia hog teleauction sale, buyers in the ring bid for hogs along with those hooked up on the conference telephone call.



Just 1,750 large feedlots marketed about two-thirds of all fed cattle in 1976.

STRUCTURE OF THE RED MEATS INDUSTRY

red meats industry consists of several sectors. A large number of producers sell directly and through agents to a much smaller number of packers. The packers and process the livestock and distribute meat and meat products to a number of further processors, and food service firms. This discussion includes the number of firms in each sector, and the status and performance of cooperatives.

Number and Size of Firms

's

estock producers are declining in number and becoming larger and more special-
m 1950 to 1969, farms with cattle declined from 4.1 million to 1.7 million; farms
s declined from 3 million to 686,000; and farms with sheep and lambs declined
,000 to 171,000 (app. table 1). Not only has the number of farms with livestock
but so has the percentage of all farms with livestock.

the number of livestock farms has declined, the average number of livestock
farm has increased (app. table 2). Between 1964 and 1974 the average number of
per farm rose by 50 percent for cattle and calves, 59 percent for hogs and pigs,
ercent for sheep and lambs.

e distribution of farms by size of livestock sales is not available for 1974, but the
d trend in number of farms since 1969 and the increasing average number of
sold per farm means the distribution has shifted toward still larger farms. In
percent of the cattle farms sold fewer than 50 head (app. table 3). On the other
percent of the cattle and calves came from 3 percent of the farms. These farms
200 or more head. About 30 percent of all cattle and calves sold were fed grain
entrates. A more detailed description of these farms is given in a later section,
eedlots."

g sales were less concentrated than cattle. Thirty-two percent of the hogs were
5 percent of the farms. These farms each sold 500 or more head in 1969 (app.
Sixty-one percent of the farms sold fewer than 100 hogs and pigs.

eep and lamb sales are more concentrated than either cattle or hog sales. Only 2
of the farms had an inventory of 1,000 or more head (app. table 5). These 3,692
counted for 47 percent of sales. About 83 percent of the farms had an inventory
than 100 sheep and lambs. A 1974 survey of sheep farms in 17 Western States
5 percent of the farms had 1,000 or more head. These farms sold 63 percent of
d lambs in those 17 States, and 50 percent of all sheep and lambs in the United

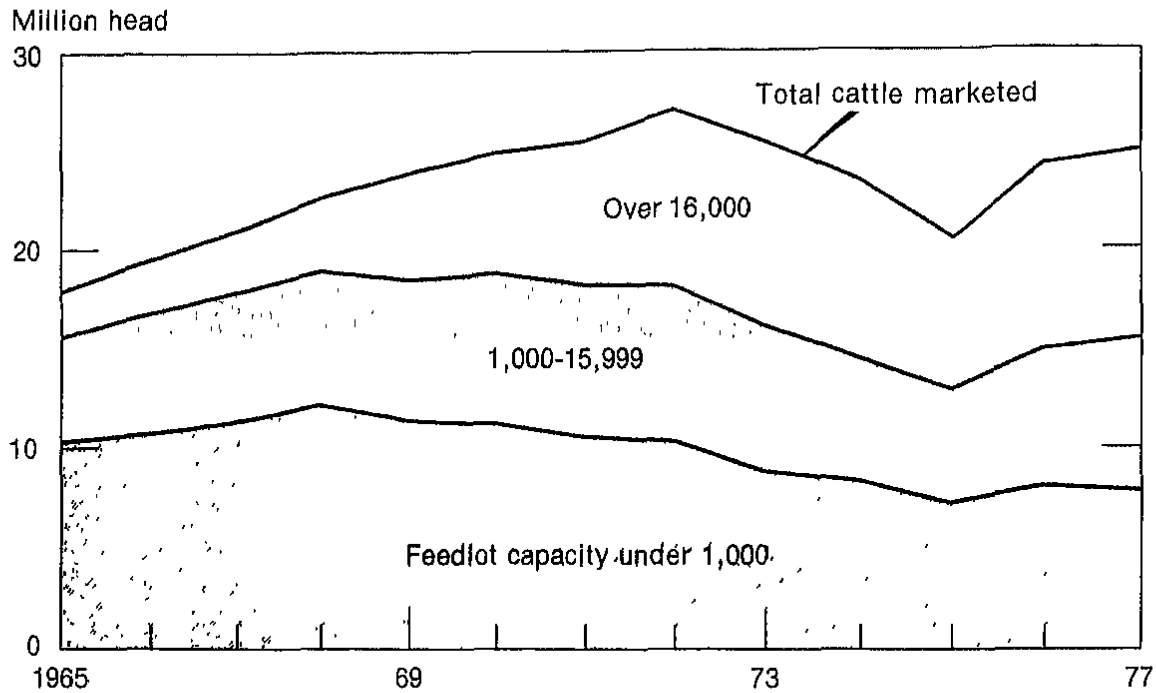
eedlots

hough a part of the live animal production stage, cattle feedlots usually are con-
s a distinct operation. Most large feedlots (1,000 head or more capacity) special-
ding and purchase most of their feed. They also purchase most of their feeder
they custom feed cattle for a second party.

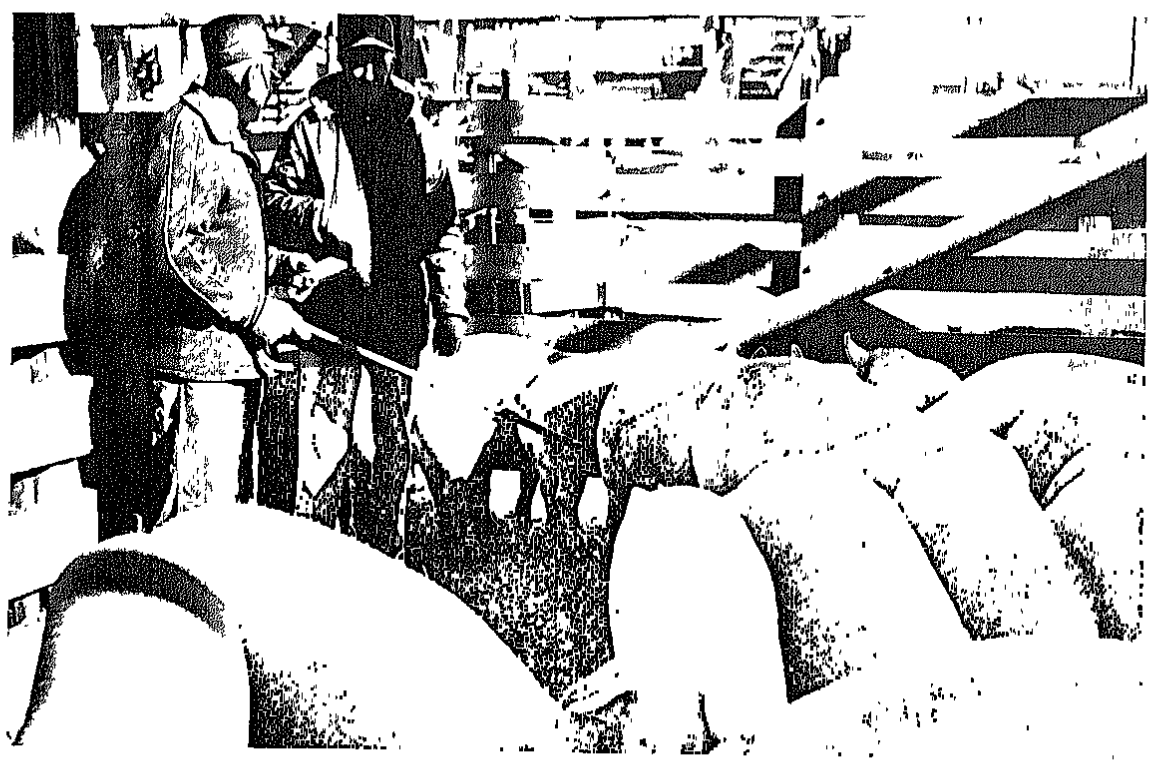
out 95 percent of all fed cattle slaughtered are fed in 23 States. In 1976, 1,750

e and Magleby, Characteristics of Sheep Production in the Western United States, AER No. 345, Economic
rvice, USDA, August 1976, p. 8.

Figure 1--Fed cattle marketed, by feedlot capacity



Data are for 23 states.
Source: Cattle on Feed, Statistical Reporting Service, USDA.



Terminal markets, the oldest form of organized livestock marketing, have declined as a market for producers' slaughter livestock. In 1975 packers purchased 72 percent of their hogs and 88 percent of all their livestock direct from producers and through country dealers.

feedlots in these 23 States had a capacity of 1,000 head or more and marketed 16.2 million cattle, an average of 9,270 head per feedlot. These feedlots represent only 1 percent of all feedlots, but they marketed two-thirds of all fed cattle (app. table 6). Only 60 feedlots had capacities of 32,000 or more head and they marketed an average of 72,000 head. In the same year, 132,667 feedlots with less than 1,000 head capacity marketed 8 million cattle, an average of 60 head per feedlot. The lots with 1,000 or more head capacity are concentrated in six States: California, Colorado, Iowa, Kansas, Nebraska, and Texas. Of the smaller lots, 63 percent are concentrated in five States: Illinois, Indiana, Iowa, Minnesota, and Nebraska.

From 1962 to 1976, the number of feedlots under 1,000 head declined 42 percent (from 229,365 to 132,667) in the 23 States. Yet during the same period, fed cattle marketings increased 66 percent (from 14.6 million head to 24.2 million). The difference was made up by large feedlots which increased in number by 22 percent (from 1,439 to 1,750) and in average size by 150 percent (from 3,675 to 9,270 head). The trend in fed cattle marketings by feedlots of various sizes is shown in figure 1.

Additional information about the size distribution of feedlots under 1,000 head can be found in the 1969 Census of Agriculture. The Census includes all 50 States. A total of 146,748 farms sold fattened cattle in 1969 (app. table 7). Almost half (44 percent) of these farms sold less than 20 head. About half the cattle fed on farms selling less than 1,000 head were fed by producers selling 200 or more head.

Marketing Firms

Livestock is handled by several types of marketing firms—terminal stockyards and commission firms, auctions, dealers, and order buyers. These firms generally handle several kinds of livestock. As a common denominator, market structure is analyzed in terms of animal units handled. An animal unit is 1 head of cattle, 1 calf, 3 hogs, or 4 sheep.

Over the past 50 years an increasing proportion of slaughter livestock has been moving direct from producer to packer and through country dealers and order buyers. Generally, a smaller proportion of livestock has been moving through terminals, although they are showing renewed strength in some areas. Auction markets, however, have maintained a fairly steady share of livestock marketings. In 1975, packers used terminals for 14 percent of all their livestock purchases, auctions for 18 percent, and direct and country dealers for 68 percent (app. table 8).

Livestock was sold at 31 terminal stockyards by 236 commission firms in 1975 (app. table 9). There were 111 firms handling fewer than 50,000 animal units; 82 firms handling 50,000-99,999; and 43 handling 100,000 or more. Of the 43 largest firms, only 8 handled 200,000 or more animal units. Two-thirds of the terminals and three-fourths of the commission firms were in the North Central Region.

In 1975, 1,604 auction markets handled livestock (app. table 10). About 55 percent of the markets operated below the estimated breakeven level of revenues and expenses which occurs at about 25,000 animal units per year. Only 5 percent of the markets sold 100,000 or more animal units. They accounted for 24 percent of auction sales. A few of the 26 largest markets (150,000 or more animal units a year) sold in excess of 400,000 animal units per year, resulting in an average for the 26 markets of 246,000 animal units. Auction markets are much more evenly distributed over the Nation than terminals, but 40 percent were in the North Central Region.

The West North Central Region includes one-third of the Nation's 6,888 registered

livestock dealers (app. table 11). Most dealers are relatively small operators. A dealer would have to handle only 2 semi-trailer loads of livestock a week to sell 5,000 animal units a year; 74 percent of the dealers had volumes of fewer than 5,000 animal units.

Slaughtering

In analyzing the number of plants slaughtering livestock, 1974 was used because it was a more normal year than 1975. In 1975 cattle slaughter was unusually large while hog slaughter was unusually small. For sheep and lambs, 1976 figures were used because of the rapid change in the number and size of these slaughter plants.

This analysis includes all firms slaughtering 1,000 or more cattle or 2,000 or more head of all livestock. In 1974, 938 firms slaughtered livestock in 1,085 plants. Of these firms, 897 operated only one plant and 41 were multi-plant firms. These firms accounted for 88 percent of cattle, 93 percent of calves, 95 percent of hogs, and 99 percent of sheep and lambs slaughtered commercially during 1974.[3] Many plants killed more than one species, but each species was analyzed separately.

Fed cattle slaughtered in each plant is assumed to be the number of steers and heifers slaughtered in 1974. Actually, about 16 percent of steers and heifers were non-fed. Steers and heifers were slaughtered in 765 plants owned by 685 firms. Ten firms slaughtered 500,000 or more head annually and 5 firms slaughered 1 million or more. Just 69 plants slaughtering 100,000 or more head accounted for 55 percent of all commercial slaughter. The larger plants are most common in the West North Central, West South Central, and Mountain Regions where most cattle are fed (app. table 12).

Nonfed cattle (primarily cows and bulls) were slaughtered in 719 plants owned by 661 firms. Almost 40 percent of cow and bull slaughter is concentrated in 38 large plants killing 50,000 or more head a year (app. table 13). The 38 plants were owned by 36 firms. These firms are also relatively specialized as 23 of them primarily killed cows and bulls. That is, they killed more than twice as many cows and bulls as all other types of livestock combined. Most of these large plants are located in the North Central and West South Central Regions.

The remaining 60 percent of cow and bull slaughter was less concentrated and was performed by more diversified firms. Of the 623 firms slaughtering less than 50,000 head, only 15 percent primarily killed cows and bulls.

Hogs were slaughtered in 555 plants operated by 492 firms (app. table 14). There were 19 plants owned by 13 firms that slaughtered 1 million or more head in 1974. A total of 59 plants owned by 29 firms slaughtered 500,000 or more head, and accounted for almost 70 percent of total commercial hog slaughter. Fifteen firms slaughtered 1 million or more hogs in 1974 and 5 slaughtered more than 5 million. The largest hog slaughtering plants are concentrated in the East North Central and West North Central Regions where most of the hogs are raised.

In 1974, there were 358 plants owned by 352 firms slaughtering calves (app. table-15). Most firms had only one plant that slaughtered calves. Most of the larger plants are concentrated in the four regions east of the Mississippi River. Only 6 plants slaughtered 100,000 or more head and only 28 plants slaughtered 25,000 or more. These 28 plants were owned by 27 firms and killed 64 percent of all calves. Fifteen of the 27 firms primarily were engaged in calf slaughter. That is, they killed at least twice as many calves as all

[3]Packers and Stockyards Resume, Statistical Issue. Packers and Stockyards Admin., USDA, Dec. 19, 1975.

Neerly 70 percent of the hoge elaughtered commercially in 1974 were killed in 59 large plants elaughtering 500,000 or more a yeer. Theee plents were owned by juet 29 firme.

other types of livestock combined. Of the 325 firms with plants slaughtering less than 25,000 head, only 9 percent primarily were engaged in calf slaughter.

In 1976, 202 firms slaughtered sheep and lambs in 204 plants (app. tahle 16). Declining sheep production has resulted in a rapid decline in the number of plants slaughtering sheep and lambs. In 1970, for example, 31 plants slaughtered 100,000 or more head. By 1976, there were only 20 such plants. These 20 plants were owned by 14 firms and slaughtered 87 percent of all sheep and lambs. Almost all of these large plants are located west of the Mississippi River. Seven firms slaughtered more than 300,000 head in 1976 and 3 slaughtered more than 1 million.

Processing

Processing is often combined with slaughtering. In 1976, 1,117 plants under Federal meat inspection in the 48 contiguous States did both slaughtering and processing. Just 377 plants slaughtered only. At the same time, however, 2,999 plants performed processing and no slaughtering.[4] The total processing volume or processing capacity of these plants is not currently available. But the large number of specialized processing plants relative to slaughtering and slaughtering-processing plants, plus the small size of most slaughtering plants, indicates that most processing plants are quite small.

Retailing

In 1972, 194,346 retail grocery establishments had gross sales of $93.3 billion (app. table 17). Red meats account for about 19 percent of retail sales.[5] Almost 50 percent of retail sales were made by 86 firms operating 24,621 stores. While these firms are in the "$100 million or more" size group, their average annual sales amounted to $532 million. Another 40 percent of retail sales were made by 154,775 firms at the other end of the size spectrum, those with less than $10 million in sales. There were relatively few firms with sales of $10 million to $99.9 million.

In addition to grocery stores, red meats were sold in 8,234 specialized meat markets with gross sales of $2.0 billion.[6]

Food Service

Red meats account for about 39 percent of consumers' expenditures for away-from-home meals provided by food service firms.[7] In 1976, there were an estimated 546,000 food service outlets with average annual sales of almost $125,000 each (app. table 18). A size distribution of restaurant firms shows that 70 percent of their total sales were made by primarily single unit firms with less than $1 million in annual sales (app. table 19). The 10 largest firms, each with sales of $100 million or more, operated a combined total of 5,786 units and accounted for 6 percent of all sales.

---

[4]Data for Dec 31, 1976 from the National Provisioner, March 12, 1977, p. 8

[5]29th Annual Consumer Expenditures Study. Supermarketing September 1976, p. 30.

[6]Bureau of the Census, 1972. Census of Retail Trade, Vol. I, pp. 12.

[7]Product Mix in the at-home Food Market. The Food Institute's Weekly Digest. Oct. 11, 1975, p.8.

Concentration in Meatpacking

The meatpacking industry at the time of World War I was generally regarded as one of the highly concentrated industries in this country. In 1920 the five largest firms—Armour, Cudahy, Swift, Wilson, and Morris—handled about 49 percent of U.S. commercial cattle slaughter, 34 percent of the calves, 44 percent of the hogs, and 62 percent of the sheep and lambs (app. table 20). At that time, about one-fourth of the cattle and 10 percent of the hogs were slaughtered in retail establishments. Farm slaughter was also important, accounting for 10 percent of cattle and one-fourth of hogs.

Since 1920 livestock slaughtering has become less concentrated at the national level, as indicated by four-firm concentration ratios (Morris was acquired by Armour in 1923). Some members of the original Big Four also have been displaced in the rankings by other packing firms.

Cattle slaughter began to become less concentrated from a national perspective in the 1930's. By 1950 the four-firm concentration ratios dropped to about 36 percent for cattle. For calves, hogs, and sheep, however, 1950 concentration ratios remained close to those in 1920. Four-firm concentration ratios dropped relatively fast for all species during the late 1950's and appear to have "bottomed out" during the late 1960's and early 1970's, with cattle in the range of 19 to 23 percent and hogs in the range of 30 to 34 percent. However, sheep and lamb slaughter has remained quite concentrated since 1920. In recent decades four-firm ratios for sheep and lambs have varied mainly within the 50 to 60 percent range.

The slaughter of fed cattle by the four largest firms is more highly concentrated at the national level than the slaughter of cows and bulls as indicated by the following ratios:

Year	*Steers and heifers*	*Cows and bulls*
	Percent	
1969	29.5	19.9
1970	23.1	15.5
1971	27.8	13.2
1972	28.8	12.9
1973	30.6	11.3
1974	28.7	12.5
1975	28.1	11.8

These figures are not strictly comparable with those in Appendix table 20 inasmuch as they are based on federally-inspected slaughter instead of total commercial slaughter, but these are the only data that can be analyzed in this manner.

Separation of the two categories of cattle reflects an important distinction in the cattle slaughter sector, however. Fed cattle slaughter has followed the changing location of cattle feeding. The highest concentration of cattle feeding lies around a "ridge" extending from the Panhandle of Texas and Oklahoma northeastward across Kansas, Nebraska, and Iowa to southeastern South Dakota and southwestern Minnesota. Twenty-two of the largest cattle slaughtering plants in this area range from 250,000 head to more than 750,000 head in annual slaughter and account for about one-third of all steers and heifers slaughtered in the United States.

Cow slaughter is more widely scattered throughout the United States and cow slaughtering plants tend to have smaller capacities. There is some tendency for cow slaughter to be concentrated around large metropolitan cities whose milksheds are a source of cull dairy cows. Wisconsin is the leading dairy state and has the largest slaughter of cows.

Today the wholesale market for fed-beef carcasses is a national market. Beef carcasses are federally graded and sold by description over the telephone. The Denver area tends to be a "divide," with carcasses moving both eastward and westward. Wholesale prices on the East and West Coasts do not differ by more than transportation costs. The wholesale market for fresh and frozen pork is also a national market with carload movements both eastward and westward from plants in Omaha and other Missouri River areas.

Processed meats, such as those derived primarily from pork and sausage meats, are privately branded and advertised. Here wholesale markets are often localized in various metropolitan consuming areas where the brands have been advertised and have local acceptance. This may have some bearing on the smaller change of concentration ratios for hogs than for cattle.

National concentration ratios do not reflect the market power of packers in the procurement of slaughter livestock from producers. Nor do such data necessarily reflect the market positions of ranking meatpackers as sellers of meat products in local or regional markets.

Appendix tables 21, 22, and 23 show livestock slaughter concentration at the four-firm level, by State and region, for 1975. The tables also show the number of major slaughter plants in each State or region and their percentage of total U.S. slaughter.

The meatpacking industry tends to be highly concentrated at the State level—much more so than it is nationally. Four ranking firms account for 65 percent or more of slaughter of different species in most States. Of the concentration ratios shown for the 40 States, only six were below 65 percent for steers and heifers, six for cows and bulls, 12 for all cattle, two for calves, three for hogs, and none for sheep and lambs. These levels of concentration reveal that markets in most States are highly concentrated.

The number of available slaughterers is limited in many important cattle feeding areas. Eight important feeding States accounted for nearly three-fourths of the U.S. fed cattle slaughter during 1975. These, in order of their rank, were Nebraska, Iowa, Texas, Kansas, California, Colorado, Illinois, and Minnesota. Four of these States—Kansas, Minnesota, Illinois, and Colorado—have a highly concentrated buying structure in that the four largest packers within each State accounted for more than 65 percent of the total slaughter. Three other important feeding States—Iowa, Texas, and Nebraska—can be called concentrated markets in that the 4 ranking firms accounted for more than 55 percent of total slaughter. Five other States—Wisconsin, South Dakota, Oklahoma, Arizona, and Washington—were over 80 percent. Although these are not included among the eight important States for fed-cattle slaughter, they are still considered as important cattle feeding States.

The 25 largest fed-cattle slaughtering States account for 96 percent of fed-cattle slaughter. The weighted average market share of the top 4 firms in each of these States increased from about 56 percent in 1969 to 63 percent in 1975, or 7 percent.

Packers in the 12 North Central States accounted for over two-thirds of the hog slaughter in this country. In this area, weighted average 4-firm market shares for hogs at the State level were 71 percent in 1972 and 77 percent in 1975—a 6-point increase in three years.

Cow slaughter is also highly concentrated in many areas of the country. For 30 slaughtering States and New England (counted as one State), the weighted average 4-firm concentration ratio was almost 68 percent in 1975, up from 65 percent in 1970. The 30 States and New England accounted for about 97 percent of 1975 cow and bull slaughter.

The buying side of the livestock business is more concentrated than most realize. The level of competition depends to a large extent on the number of buyers who are accessible to livestock feeders. In general, buyer availability on a State level overstates buyer availability at the feedlot.

The relevant market area within which a given packing plant affects pricemaking is usually smaller than a single State. Most slaughter livestock is sold by the producer to a packer or other buyer who usually is located within 50 or 100 miles of the producer. Shipping live animals out of the local market area in search of higher prices may have uncertain results. It is also costly because of the trucking costs involved, as well as losses due to shrink, injury, bruising, and death. Effective market areas for live animals therefore tend to be quite localized. Under these circumstances, the concentration ratios cited above are indications of a highly-concentrated market situation.

Large commercial feedlots may have as many as eight to ten buyers who routinely visit them each week to appraise the several pens of cattle that are approaching market weight and finish. A farmer-feeder, however, may have as few as two, three, or four buyers to look at his cattle when they are ready for sale. Some feeders have reported they are unable to get a single buyer to come to their feedlots.

Slaughter cows and bulls usually are delivered to a local livestock auction market for first sale. Bidders for these animals may include as few as two or three buyers, either packer-buyers or dealers buying on their own or packer accounts. A State concentration ratio is likely to suggest more competition than is actually available at the local auction market.

Many hogs are sold direct to packers. Effective market competition for hog producers is limited to the number of buyers that a seller is likely to contact when he sells his butcher hogs.

This relative lack of buyers on the local level means that the buying side of the live market has more market power than the selling side. A decision on the part of a single buyer to buy or not to buy may have an effect on price. A similar decision on the part of a single seller has no price effect at all. This means that the market for slaughter livestock is not perfectly competitive.

The increasing concentration in meatpacking at the State level results to a great extent from the need of firms in the industry to operate more efficiently. Growth in plant and firm size is encouraged by the increasing size necessary to achieve the significant economies of scale and to effectively address the concentrated buying side of the wholesale meat market. The result is that fewer firms have the resources to achieve the necessary size, and fewer plants and firms are needed to slaughter the relatively fixed supply of livestock.

The role of cooperatives is to enhance the competitive position of their producer-members in the marketplace. From the preceding discussion it would appear that producers should be giving serious consideration to collective action in the red meats industry at a level of operation necessary to improve competition. However, are livestock producers willing to organize and operate a countervailing business of the scale and with the commitment required to enhance their competitive position?

The next section of this report discusses the present status of cooperative activity in the red meats industry.

Status and Performance of Cooperatives

Cooperatives market livestock for producers in 43 States, including Hawaii, and in Canada.[8] They provide a wide variety of marketing services for all species and classes of livestock. Cooperatives operate terminal market commission agencies, selling by both private treaty and auction; operate auction markets; perform order buying services for feeder and slaughter livestock; operate country hog markets as dealers; represent producers in country commission sales direct to packers; sell livestock over the telephone by private treaty; conduct teleauctions; hold special graded auction sales for feeder livestock; operate lamb pools; slaughter livestock; and process and distribute meat products. In addition, some cooperatives export livestock to foreign countries.

The cooperative share of livestock marketings can be estimated for commission agencies on terminal markets, auction markets, meatpacking, and all operations combined. The combination includes dealer, order buying, and other transactions that cannot be easily estimated for proprietary firms. The estimates are presented on a regional basis to avoid disclosure of individual cooperative operations.

In 1975, cooperatives operated 24 of 236 commission agencies on 19 of the 31 terminal markets. With just 10 percent of the agencies, they handled 19 percent of all livestock sold through terminal markets. The cooperatives handled about one-third of the sheep, one-fourth of the hogs, and one-fifth of the cattle (app. table 24).

Cooperatives handled a relatively large share of hogs in the East North Central Region and of sheep in the East North Central and South Central Regions. In the West North Central Region, where 60 percent of terminal livestock marketings occur, cooperatives handled larger shares of cattle and calves but a smaller share of hogs and sheep than in other regions.

Cooperatives operated 112 auctions in 1975, 6 percent of all auctions in the United States. Through these auctions they marketed 3,925,800 animal units, 7 percent of all animal units sold by auction (app. table 25).

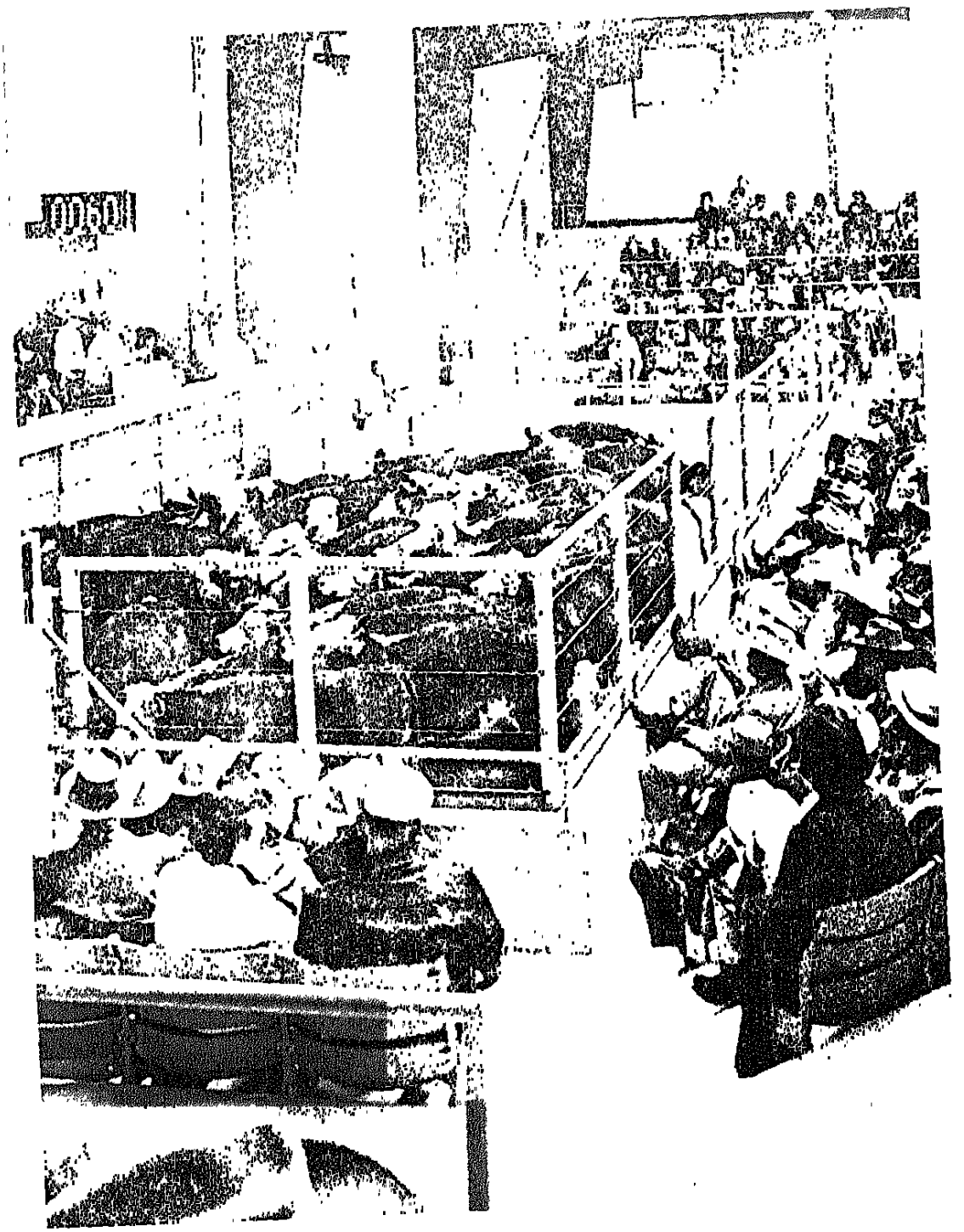
The cooperative auctions handled more cattle than hogs or sheep, but so did all auctions combined. On the average, cooperatives handled about the same volume of cattle as other auctions, but they handled larger volumes of hogs and sheep as indicated by the higher cooperative share for these species. This is due in part to the substantial number of pooled feeder pig and lamb sales held at cooperative auctions.

Cooperatives were most important in the East North Central Region where they operated 26 percent of all auctions and handled 38 percent of all animal units marketed by auction. At the State level, Wisconsin ranked first by a wide margin with 67 percent of auction animal units marketed by cooperatives. Five other States were above 40 percent: Massachusetts, Michigan, New Jersey, Ohio, and Utah.

In 1975, 6 cooperatives operated 11 slaughtering plants in 8 States (app. table 26). All these plants also did some processing. In addition, one cooperative operated a separate meat processing plant and a plant that produced pre-cooked, frozen entrees for the retail trade and portion-controlled products for the food service industry. Altogether these cooperatives slaughtered 0.8 percent of all cattle and 2.3 percent of all hogs slaughtered in 1975. Farmland Foods, Inc. is by far the largest cooperative packing firm, with sales of more than $400 million in its fiscal year ended August 31, 1977.

---

[8]Swanson, B.L., and J.H Click, Statistics of Farmer Cooperatives Farmer Cooperative Service, U S Dept. of Agriculture. FCS Research Report 39. April 1977.



Cooperatives operate modern, efficient auction markets as part of a wide array of marketing services they provide producers. However, producers market only about 13 percent of their livestock through cooperatives.

Since 1975 the cooperatives in Colorado and Missouri and one plant in Georgia have ceased operations. However, a new cattle slaughter cooperative has been organized and there are plans to construct a plant at Great Falls, Mont. Also, a producer-owned plant in Colorado has changed its bylaws to become a cooperative. Other cooperatives are investigating entry into meatpacking.

In addition to livestock marketed by the methods just discussed, cooperatives' total marketing volume includes livestock handled through nonpublic market transactions such as order buying, country commission sales, and dealer operations. The volume of cooperative packing plants also is included in total cooperative marketings because these plants represent primary markets to producers who sell directly to them.

Data on total cooperative marketings were obtained from individual organizations and compared with total marketings as estimated by the Statistical Reporting Service (SRS), USDA. This comparison overstates the cooperative share because the SRS data do not include livestock going from one farm to another within a State. Also, cooperative packing plants obtain at least some livestock by methods other than buying directly from farmers. On the other hand, some small marketing and frozen food locker cooperatives may have been overlooked in the process of estimating total cooperative volume in each State.

Throughout the United States in 1975, cooperatives marketed a total of 8.2 million cattle and calves, 11.5 million hogs and pigs, and 1.6 million sheep and lambs. The cooperatives' market share was 12, 16, and 15 percent, respectively, or 13 percent of all animal units (app. table 27). Cooperatives commanded the largest market share in the East North Central Region. This is also the region where they held the largest share of terminal and auction marketings. Michigan had the largest cooperative share, 59 percent. Six other leading States with a cooperative market share above 30 percent were Minnesota, New Jersey, New York, Ohio, Utah, and Wisconsin.

The southern regions showed the least amount of cooperative activity. Cooperatives in the West South Central Region handled only 3 percent of the livestock and those in the Southeast only 5 percent. These two regions have relatively little cooperative activity in terminal stockyards and auctions, or in other marketing activities.

Several States have nonprofit producer associations engaged in livestock marketing. These associations operate much the same as a cooperative. If the volume of these associations were added to the cooperative volume, the cooperative market share for cattle, hogs, and sheep would increase about 1 percent, as would the share of total animal units marketed.

The nonprofit associations are most active in the Southeast and East South Central Regions. In the Southeast they cause the producer-controlled market share to increase from 5 to 8 percent of all animal units. In the East South Central they cause the market share to increase from 9 to 14 percent.

Producer Investment in Livestock Marketing

A review of data for fiscal years ending in 1974-76 reveals that livestock cooperatives' total assets amounted to about $163.3 million, of which $47.7 million, or 29 percent, was financed by net worth (table 1). Based on an estimated 728,000 members this translates into $66 of net worth per cooperative member, including allocated and nonallocated reserves.

Table 1—Financial position of cooperatives in livestock marketing, 1975

Type of cooperative	Members		Total assets		Net worth	Net worth as percent of assets	Total assets per member	Net worth per member
	1,000	Percent	1,000	Percent	1,000	Percent	Dollars	
Regional livestock marketing	494	68	67,664	41	19,238	28	137	39
Meatpacking	17	2	90,765	56	24,171	27	5,238	1,395
Local livestock marketing	217	30	4,827	3	4,306	89	22	20
Total or average	728	100	163,256	100	47,715	29	224	66

These data were further separated into the following categories:

1. Regional livestock marketing cooperatives (excluding cooperative meatpacking).
2. Meatpacking cooperatives.
3. Local livestock marketing cooperatives.

A closer review indicates pronounced differences in the capital invested in these different segments of cooperative livestock marketing activity.

Regional livestock marketing cooperatives (excluding meatpacking) own $68 million of total assets, which is 41 percent of the total national investment in cooperative livestock marketing. These cooperatives serve 494,000 members, or 68 percent of the cooperative livestock marketing membership. The total net worth of these regionals amounts to $19.2 million, which is equivalent to about $39 per member.

Meatpacking cooperatives' total assets of about $91 million represent 56 percent of the national cooperative livestock marketing investment. Their net worth amounted to $24 million. Because of the geographically limited livestock marketing area served, these cooperative meatpackers served about 17,000 members, or about 2.5 percent of the national cooperative livestock membership. This translates into a total cooperative investment equivalent to $5,200 and net worth of about $1,400 per member.

Local livestock marketing cooperatives have the lowest total investment—$4.8 million, or about 3 percent of the national cooperative marketing total. Local cooperatives have financed about 89 percent of their total assets with net worth, higher than either the regional marketing or meatpacking cooperatives. Their net worth is equivalent to about $20 per member.

It is obvious from this discussion that, for the most part, livestock producers have made little investment in a system to improve the marketing of their livestock. While a substantial investment has been made in cooperative meatpacking, both in total and per member, very little of this capital has come directly from the livestock producers that market their livestock through the cooperative slaughter plants. Instead, large regional farm supply-marketing cooperatives have supplied most of the capital.

Profitability of Cooperative Meatpacking

Historically, meatpacking has been an industry in which cooperatives have not operated very successfully. In the last 20 years several new cooperative meatpacking ventures have been started. What has been the operating experience of these cooperatives in recent years?

The operating results of five cooperatives during the 5-year period 1971-75 indicate that on the whole their meatpacking operations have not been highly successful financially (table 2). During this period these cooperatives' combined net sales amounted to $1.45 billion. From these sales they had total net savings of $552,000, or 0.04 percent of net sales. During the period the five cooperatives had total net savings of $8.4 million and operating losses of $7.8 million. In 3 of the 5 years the cooperatives had a combined loss of as much as 0.62 percent of sales.

Results of individual cooperative's operations ranged from total net savings for the period of 0.63 percent of sales to a total loss of 8.3 percent of sales. One cooperative had net savings in each of the 5 years and another had net savings in all but 1 year. One cooperative had maximum annual net savings of 3.85 percent of sales and another had net savings of as much as 1.7 percent of sales. Two cooperatives experienced operating losses in each of the 5 years and during 1973 four of the five had net losses. Annual losses ranged as high as $2.37 million for one cooperative, or 10 percent of sales.

Cooperatives' returns on capital invested in meatpacking also have been small when considered overall. During the period 1971-75 the five cooperatives realized an average before-tax savings of 0.57 percent of total assets and 1.06 percent of net worth. Average returns for the five cooperatives in individual years ranged from net savings of 13.14 percent of total assets and 31.71 percent of net worth in 1971 to a net loss of 4.87 percent of total assets and 10.73 percent of net worth in 1974.

The range in returns on investment for specific years for individual cooperatives was much wider. One cooperative had annual net savings of as much as 15.2 percent of total assets and 47.5 percent of net worth. Another cooperative, however, experienced annual operating losses of as much as 88.5 percent of total assets and 92.8 percent of net worth. One cooperative had average annual losses for the period of 46.9 percent of total assets and 56.4 percent of net worth.

These operating results might be compared with those of other meatpacking firms as a standard of performance. A comparison of cooperative performance with that of the industry may not be entirely valid, however, because the period 1971-75 was a period of entry into cooperative meatpacking on a relatively small scale. Many industry firms, on the other hand, have large, long-established meatpacking operations. Nevertheless, a cooperative-industry comparison might be useful to producers and cooperatives in establishing performance goals for meatpacking.

Table 2—Return on net sales, total assets, and net worth for 5 meatpacking cooperatives combined, 1971-75[1]

Year	Annual net savings[2] as a percent of		
	Net sales	Total assets	Net worth
		Percent	
1971[3]	1.63	13.14	31.71
1972	.71	4.63	8.99
1973	-.29	-2.28	-4.51
1974	-.62	-4.87	-10.73
1975	-.59	-2.74	-10.14
Average	.04	.57	1.06

[1]Includes Farmland Foods, Inc.; Gold Kist Inc., Landmark, Inc., Missouri Farmers Association Packing Division; and Shen-Valley Meat Packers, Inc.

[2]Before income taxes.

[3]Based on 4 cooperatives.

Source: Packers and Stockyards Administration, USDA, and cooperative records.

The operating results of nine selected proprietary firms were analyzed for the same 5-year period used for cooperatives. These firms were selected because they were performing functions similar to the cooperatives, although in most cases their sales were considerably larger.

The nine proprietary meatpacking firms had total net sales of $27.2 billion and combined before-tax earnings of $565.7 million over the 5 years. Their combined period earnings were 2.08 percent of their total sales. Earnings for the period ranged as high as 4.95 percent of sales for one firm. This compares with cooperatives' average net savings of 0.04 percent of sales and an individual cooperative high of 0.63 percent for the same period. While cooperatives had total sales equal to 5.3 percent of the proprietary firms' combined sales, their net savings amounted to only 0.1 percent of the proprietary firms' before-tax earnings.

Individual proprietary firms had annual before-tax earnings of as much as 7.1 percent of sales. The highest annual net savings of any cooperative was 3.8 percent of sales. Of the 24 usable observations of cooperatives' annual net savings as percentage of sales, only three exceeded 1 percent. Of the 43 usable proprietary firm observations of before-tax earnings, 30 exceeded 1 percent of sales and 8 exceeded 3 percent. Only 2 of the 9 proprietary firms experienced any losses during the period—they had a combined total of 3 loss years.

The operating experiences of cooperatives may also be compared with those of meatpacking firms included in the American Meat Institute's annual financial survey. An average of 89 firms were surveyed annually during the period 1971-75 (table 3). These firms had average before-tax earnings over the period of 1.84 percent of sales, 46 times the average for cooperatives during the same period. Average earnings ranged as high as 2.6 percent of sales for "sectional" meatpackers. An average of 12 percent of the firms surveyed reported losses each year while an average of 54 percent of the cooperatives had losses each year.

These firms' return on capital invested in meatpacking was also considerably higher than for cooperatives. They had average before-tax earnings of 9.23 percent of total assets, more than one and one-half times as large as the highest cooperative return and

Table 3—Estimated return on sales, total assets, and net worth for meatpacking firms, classified by sales size, 1971-75

Meatpacking firm classification[1]	Average number of firms	Earnings as a percent of[2]		
		Sales	Total Assets	Net worth
	Number		Percent	
National	13	1.88	8.35	16.66
Regional	39	1.72	11.58	22.01
Sectional	25	2.60	13.57	22.49
Local	12	1.91	9.17	16.09
Average	89	1.84	9.23	18.03
Industry	—	1.88	10.78	20.40

[1]National packers have annual sales of $250 million or more and distribute their products nationally. Regional packers have annual sales between $25 million and $250 million and generally do not distribute their products nationally. Sectional packers have annual sales between $5 million and $25 million and a limited area of product distribution. Local packers have annual sales less than $5 million and distribute products only in their local area.

[2]Before income taxes.

Source: Derived from Financial Facts About the Meat Packing Industry, American Meat Institute, 1971-75 issues.

more than 16 times the five-cooperative average. Their return on net worth averaged 18.03 percent, more than 17 times the five-cooperative average. Only one cooperative had average returns approaching this level—17.39 percent. Sectional packers had even higher average rates of return on assets and net worth, as did the entire meatpacking industry.

Forbes magazine's January 1 issue traditionally reviews and measures the management performance of about 1,000 public companies by comparing their profitability and growth. Sixteen companies are included in Forbes "Meatpackers" industry group. The data in table 4 from Forbes provide some insight into the management performance of the meatpackers group. The meatpackers group is included with three other industry groups—food distributors, agricultural commodities, and other wholesalers—in a broad classification identified as distribution wholesalers. The distribution wholesalers group is one of 30 broad industry categories.

The distribution wholesalers group ranked at a very respectable seventh place among the 30 broad groups in return on equity, fourth place in both return on total capital and sales growth, and sixth place in earnings per share. The meatpackers group, however, seemed to be the laggard within the Distribution Wholesalers group in practically all these measures. Its 13.3 percent 5-year average rate of return on equity capital compared more closely with industry groups ranked in 12th place. Its 9.4 percent 5-year average return on total capital compared more closely with industry groups ranked in 13th place. And, its 8.5 percent 5-year average earnings per share compared more closely with the 18th ranked industry group. The meatpackers' 1.0 percent net profit margin was at about the "bottom of the heap." The meatpackers' 14.5-percent, 5-year average sales growth was the only Forbes measure that kept pace with other industries in the distribution wholesalers group.

What all this seems to say is that, for all their effort, meatpacking companies just manage to stay at about the median level of all-industry performance. The low net-profit margin very clearly indicates the fundamental requirement for a relatively large sales volume per dollar of total invested capital for a firm to operate successfully.

Entry by farmers into this industry is difficult to justify on the rationale that companies currently involved in meatpacking are "making a killing" at farmers' expense. That does not appear to be the case.

In other words, were farmers given a choice of allocating their scarce resources for the purpose of gaining greater returns, it does not appear that entrance into meatpacking

Table 4—Five year average medians of selected management performance mensures for meatpackers and other industry groups, 1971-75

Type of company	Return on equity	Return on total capital	Net profit margin[1]	Growth in[2]	
				Dollar sales	Earnings per share
			Percent		
Distribution-wholesalers.	14.7	11.1	1.2	15.1	12.7
Meatpackers	13.3	9.4	1.0	14.5	8.5
Food distributors	15.2	11.8	1.2	15.0	13.7
Agricultural commodities	16.1	11.4	2.9	17.2	16.5
Other wholesalers	13.6	11.3	2.7	9.2	11.1
All industries	12.7	9.1	4.6	11.8	9.4

[1]Net profit as a percent of net sales.
[2]5-year compounded annual growth rate
Source: Reprinted by permission of FORBES Magazine from the January 1, 1977 issue.

would provide an opportunity for dramatic benefits per dollar invested. Of course, farmers may wish to enter meatpacking for reasons other than a high return on investment, such as ensuring a market outlet for their livestock, providing a source of market intelligence, or providing an alternative outlet in markets with few buyers.

Conditions of Entry

Discussed in this section of the report are barriers to entry of new firms into livestock marketing and meatpacking. These barriers apply to both cooperatives and other firms, but livestock producers and their cooperatives should be aware of them. Since the barriers are quite different for the livestock marketing and meatpacking segments of the industry, they are discussed separately.

Livestock Marketing

Entry of new firms into livestock marketing is relatively easy compared to entry of meatpacking firms. There are, however, impediments that may deter the entry of some new firms, including cooperatives.

Investment requirements are relatively small for market agencies and dealers that operate no fixed facilities. They need only small amounts of fixed assets and moderate amounts of operating capital that will allow them to meet the financial responsibility requirements of the Packers and Stockyards Administration (P&SA). Investment requirements for market agencies and dealers can be substantial, however, when fixed facilities such as auctions or country hog markets are involved. For example, a modern auction market could cost $500,000 or more. The required investment may be a significant barrier to some potential entrants. The cost of new facilities also would be higher than the cost of existing firms' facilities, hence a new firm could have a higher per unit cost structure unless its facilities were also more efficient.

Another impediment to entry is the impact a new firm would have on the distribution of available marketings among firms within the market area. Most market areas already have excess marketing capacity with the result that many firms are operating at volumes that are inefficient and too low to attract effective buying competition. Entry of a new firm would further dilute the volume of the existing firms and put the new firm in a high risk position relative to its ability to operate at an efficient and profitable level. While prices of marketing services probably would not fall in response to the entry of a new firm, the existing price level may not be sufficiently high to permit a new firm to operate profitably with a restricted volume. Therefore, new firms may be hesitant to enter livestock marketing, particularly if they must make substantial investments in fixed facilities.

Closely related to this barrier is that of product differentiation on the part of existing firms. Each firm is selling a marketing service that is differentiated in the minds of producers from the services of other firms. This differentiation by producers may be based on personalities, long periods of association, friendship, convenience, reputation of the marketing firm, and so on. A new firm would face the prospect of having to incur substantial costs to differentiate its service in order to attract the volume of livestock necessary for profitable operations. A new firm thus could have a higher cost structure than existing firms, a deterrent to entry. Of course, many of these barriers could be significantly reduced if a new firm entered by purchasing an existing firm.

There also are some institutional factors that may deter entry of new firms into

livestock marketing. For example, some States require firms to show economic need before new auction markets may be established. The regulations of the P&SA requiring the posting of a bond by dealers and marketing agencies and the maintenance of a custodial account by market agencies no doubt deter entry by some new firms due to the higher capital requirements. Recent revisions in P&SA's prompt payment requirements further inflate the operating capital requirements of livestock marketing firms by eliminating the use of drafts as cash payment instruments.

Slaughtering and Processing

Conditions of entry of new firms into livestock slaughtering and meat processing are much more imposing than they are in livestock marketing. A significant barrier to entry is the economies of size in slaughter-processing plants. Optimum size plants are large and require a substantial investment in fixed facilities and operating capital. For example, total assets of $15-20 million would be required for a beef or pork plant killing 1 million hogs or 250,000 cattle a year.

Closely related are institutional factors that increase firms' investment requirements for both fixed assets and operating capital. Increasing health, sanitation, and environmental protection requirements for plant facilities results in higher construction and operating costs. Recent changes in P&SA regulations requiring packer bonding and eliminating drafts as cash payment instruments under the prompt payment requirements add to the amount of operating capital needed by meatpacking firms. Many potential new firms are unable to raise the amount of investment capital required, so the number of possible entrants is limited.

Another important barrier to entry is the degree of product differentiation by existing firms. Brand name marketing is particularly strong in processed meat products such as cured pork, sausages, and canned meats. While branding is not presently important in fresh beef and pork products, existing firms have established sales outlets that were built on the firms' reputation and ability to serve their customers' needs. New firms entering the industry do not have an accepted brand name, established sales outlets, or a reputation for performance. Development of markets for a new firm's products requires the expenditure of substantial resources, putting these firms at a cost disadvantage relative to existing firms.

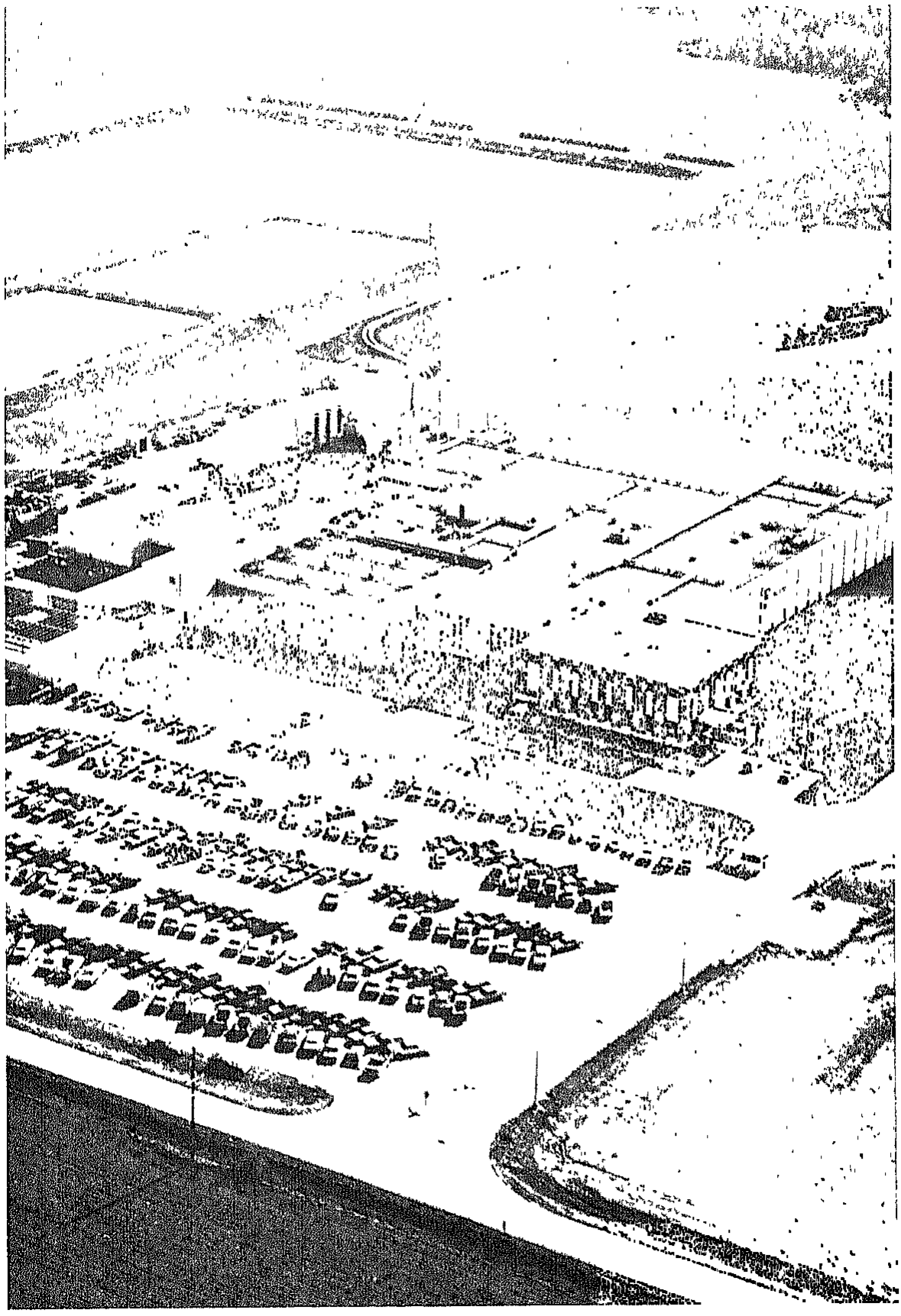
Slaughter-processing is a high risk business, although not as high a risk as some other areas of the food and kindred products industry. During the period 1966-76 there were 203 failures of meat products firms, or an average of 18.5 firm failures each year.[9] [10] These failures averaged 19.1 percent of all business failures in the food and kindred products industry, while the number of meat products firms averaged 17.2 percent of all firms in the industry in 1967 and 1972.[11] In individual years meat products firm failures ranged from 11 to 41 percent of all food industry failures.

One measure of risk that might be used is the percentage of the total number of firms in the industry that actually failed during a specific period. In 1972, 0.53 percent of all meat products firms failed, up from 0.45 percent in 1967. In the food and kindred products industry

[9]Business failures include those businesses that ceased operations following assignments or bankruptcy, ceased with loss to creditors after such actions as execution, foreclosure, or attachment; voluntarily withdrew leaving unpaid obligations; were involved in court actions such as receivership; reorganization or arrangement; or voluntarily compromised with creditors out of court.

[10]Dun & Bradstreet, Inc., Dun's Statistical Review, *Quarterly Failure Report*, 1966-76 fourth quarter issues, New York, NY.

[11]U.S Dept. of Commerce, Bureau of the Census, *1967 Census of Manufacturers*, Summary and Subject Statistics, Vol. 1, T.3 p. 28, and *1972 Census of Manufacturers*, General Summary, Subject Series, MC72(1)-1, T.3, pp. 1-36.



Financing modern, efficient-size meatpacking operations requires a large investment in fixed facilities and operating capital.

as a whole, 0.45 percent of the firms failed in 1967 and 0.44 percent in 1972. Meat products firms' failure rate in 1972 was below that of bakery products firms (0.72 percent) and canning and preserving firms (0.78 percent), but was above that of dairy products firms (0.28 percent) and grain-mill products firms (0.22 percent). In 1967 meat products firms' failure rate also was above that of canning and preserving firms (0.36 percent).

These business failure statistics do not tell the whole story of the risk of failure in the slaughtering-processing business. Each year a number of plants owned by multiplant firms are closed because of any number of factors that have or are expected to result in unprofitable operations. If these were single-plant firm operations they probably would have been counted as business failures and the rate of failure would have been higher than was reported.

Slaughter-processing firms' profits vary widely due to seasonally and cyclically fluctuating livestock supplies and prices and variable supplies and prices of competing products. Plants often must operate at substantially less than capacity due to a shortage of livestock supplies, thus increasing unit costs. These conditions often lead to unprofitable operations. During the period 1971-75 an average of 12 percent of the firms participating in the American Meat Institute's annual survey reported operating losses.[12] For individual years during this period, the number of firms reporting losses ranged from 8.7 percent to 17.2 percent of those participating.

New firms entering the industry usually have to sell a higher proportion of their product in the less profitable fresh meat market. Lacking established sales outlets, they also must sell more of their production in the "surplus" market, where returns usually are lower than for product sold directly to retailers or the food service industry. All these factors result in a high risk of financial losses and deter the entry of new firms that may not have the resources to weather unprofitable periods or are unwilling to accept these risks at the level of returns common in the industry.

Entry of a new firm into the slaughter-processing industry probably would have little effect on the industry wholesale price level. It could not expand total meat production because of the relatively fixed livestock supplies at any point in time. But entry may result in increased raw product costs as the larger number of firms bid for the fixed volume of livestock, especially in the new firms' normal supply area. This result would be particularly likely if the new firm entered with a large plant. The returns of the new firm then would not be as large as expected. Recognizing this probability, new firms would be reluctant to enter the industry.

A new firm probably would have a cost disadvantage relative to existing firms due to higher construction and equipment costs for a new plant. The new firm's capital and related debt service costs would be higher than those for existing firms that had previously built plants at a lower cost. This may deter some firms from entering the industry unless a new plant has enough technological improvements over existing plants that the higher costs could be offset by greater efficiency and lower production costs.

As in livestock marketing, the preceding discussion assumes the entry of a new firm as an addition to the slaughter-processing industry. If a cooperative were to enter the industry through purchase of an existing firm (including its brand names and sales outlets), some of the barriers discussed would be nonexistent or, at least, only minimal. For example, the cost of establishing brand names and sales outlets could be essentially eliminated.

[12]American Meat Institute, *Financial Facts About the Meat Packing Industry*, 1971-75 issues. Washington, D.C.

Legislation and Regulations

The Capper-Volstead Act legitimizes the reduction of competition between farmers—as otherwise independent businessmen—by permitting "... farmers, planters, ranchmen, dairymen ... (to) act together ... in collectively processing, preparing for market, handling and marketing in interstate and foreign commerce, such products of persons so engaged." Assuming that market agency, dealer, feedlot, and meatpacking plant operations all fall under the general meaning of "... processing, preparing for market, handling and marketing ..." there would appear to be a reasonable, legitimate basis for farmers to collectively join in a cooperative organization to perform these functions for themselves within one organizational structure.

Livestock marketing and meatpacking firms, including cooperatives, are subject to regulations promulgated under the Packers and Stockyards Act, 1921, As Amended. "The objectives of the Packers and Stockyards Act are: to maintain effective competition for livestock, meats, and poultry; to prevent unfair trade practices in those industries; and to provide consumers and farmers the protection of such effective competition.[13]

The Packers and Stockyards Act of 1921 was in the stream of antitrust legislation, beginning with the Sherman Act of 1890, which proscribed conspiracies, restraints of trade or commerce, monopolization, and attempts to monopolize. The Clayton Act of 1914 proscribed certain types of geographic price discrimination and restricted mergers between two competing firms. The Federal Trade Commission Act of 1914 prohibited unfair methods of competition and unfair or deceptive acts or practices in commerce, trade practices which had been associated with tendencies toward monopoly. The Packers and Stockyards Act of 1921 was enacted with particular application to the livestock and meat industry and with somewhat broader language that could be adapted to a changing and developing industry.

The related regulations issued by the Packers and Stockyards Administration (P&SA), U.S. Department of Agriculture, under the Act are aimed at "...maintaining effective competition..." Many were aimed at preventing obvious conflicts of interests, various financial or ownership relationships which would interfere with the selling or buying agents' legal responsibilities to serve only the interests of their principals. Others were aimed at preventing collusion in the market place. These regulations prohibit packers from owning or financing selling agencies, dealers, buying agencies, and custom feedlots; prohibit independently registered dealers from owning or financing a selling agency and all dealers from owning or financing a packer; prohibit a buying agency from owning or financing a packer; and prohibit a custom feedlot from owning or financing a packer.

In other words, some of the regulations that are intended to prevent conflict-of-interest situations and possible collusion may impede some forms of vertical integration. If any of these market interests were a cooperative, the same constraints would seem to apply. Particular regulations that may have such effects are as follows:

201.66—A market agency[14] shall not permit a packer or a packer-employed livestock buyer to perform any of its marketing services. Nor may a market agency employ anyone operating as a dealer or market agency to, at the same time, buy or sell livestock.

[13]From the statement of Dr. V. James Rhodes, University of Missouri, Columbia, for the Record of Hearing on Proposed Amendments to Regulations 201.2 and 201.70 under the Packers and Stockyards Act, Des Moines, Iowa, Feb. 26, 1974.

[14]A market agency is a firm buying or selling livestock on a commission basis.

However, a selling agency may employ an individual dealer or market agent provided that individual does not engage in any dealer or market agency transactions at the stockyard where he is employed by the selling agency. The primary purpose of this regulation is to prevent conflict of interest problems for market agencies.

201.67—No packer shall have an ownership interest in, finance, or participate in the management of a market agency that sells livestock on commission.

201.68—No packer shall operate as a dealer or market agency purchasing livestock on a commission basis. In other words, a packer cannot purchase livestock for resale; its purchases must be for its own slaughter. (An exception to this rule is that packers are permitted to buy and sell livestock, as dealers, for export.)

The preceding constraints relate to the management or financial interest of a packer in a market agency. The general thrust of the regulation is that packers are precluded from having any interest whatsoever in a market agency.

On the other hand, a dealer or market agency may not have a substantial ownership interest in, finance, or have a voice in the management of a packer. Section 201.68(b) also points up the fact that a livestock market agency or dealer is precluded from engaging in meatpacking.

201.69—Packers may not inform other buyers about their buying operations. For example, a packer may not provide information to another packer about the species, classes, volume of livestock to be purchased, or prices to be paid. Thus a federation of cooperative packers might market the processed livestock of its member-packers on a cooperative basis. But member-packers must conduct their procurement and buying operations independently of other member-packers and all other packers. This regulation is intended to prevent collusion between buyers.

201.70a—A packer may not own, operate, finance, or control a custom feedlot. By the same token, a custom feedlot may not own, operate, finance, or control a packer. These constraints, however, do not prohibit a packer from having its own livestock fed in a custom feedlot for the purpose of its own slaughter.

Section 306(f) of the Packers and Stockyards Act prohibits stockyard owners and marketing agencies from making rebates. Parenthetically the same section states:

> (but this shall not prohibit a cooperative association of producers from bonafide returning to its members on a patronage basis, its excess earnings on their livestock, subject to such regulations as the Secretary may prescribe.)

As interpreted by the then Attorney General in 1924, a cooperative livestock market agency is precluded by the P&S Act from paying patronage refunds to nonmembers. Consequently, the cooperative could not treat members and nonmembers alike. As a result it could not meet the requirements for so-called exempt status under Section 521 of the 1954 Internal Revenue Code unless it served only its members, that is, it did no business with nonmembers. However, the P&S Act does not prohibit cooperatives from providing services to both members and nonmember patrons.

The various constraints articulated in regulations 201.66 through 201.70a on the relationships between various market interests in the livestock industry describe primarily the prohibitions on specific kinds of vertical integration in which cooperatives might otherwise become involved. The question is, therefore: What arrangements *are* available to

producers who may want to cooperatively market their livestock? We believe the following types of vertical integration are currently possible:

1. A cooperative operating its own packing plant can own feedlots to feed its own cattle for its own slaughter.

2. A cooperative operating its own packing plant can contract with a custom feedlot to feed the cooperative's cattle for its own slaughter.

3. A cooperative operating its own packing plant can advance funds to a custom feedlot operator to purchase feed, veterinary service, and the like, for cattle owned by and being custom-fed for the cooperative.

4. A cooperative owning its own packing plant can have as members producers that operate custom feedlots and at the same time feed their own livestock and market them through the cooperative. However, the feedlot operator-member cannot buy or sell livestock for other feeders using his feedlot services.

5. A livestock marketing cooperative can operate as a dealer and as a market agency buying and selling livestock on a commission basis.

6. A livestock marketing cooperative operating as a dealer or a market agency can own, operate, finance, and participate in the management of a custom feedlot.

7. A cooperative custom feedlot can own, operate, finance, and participate in the management of either a selling or buying agency, or a dealer.

8. Cooperatives operating their own packing plants can form a federated cooperative to jointly perform processing, marketing, and distribution functions so long as they conduct their livestock procurement operations independently.

Caution must be exercised in designing integrated cooperative systems to ensure that they do not violate the regulations promulgated under the Packers and Stockyards Act.

FUTURE TRENDS IN THE RED MEATS INDUSTRY[15]

Prospects for the U.S. livestock and meat industry are for continued growth. However, the rate of expansion is expected to be more moderate than that of recent years. This growth will be subject to price-production cycles of varying lengths.

Beef

Cow-calf operations in the U.S. have been characterized by relatively small herds—usually less than 50 cows—that utilize marginal lands and roughages in a supplemental enterprise. These herds have traditionally accounted for the bulk of feeder calf production. However, beef cow herds in some sections of the country range up to several thousand head.

Cow-calf production likely will continue in the hands of two distinct groups of producers widely diverse in size. The number of very small herds is likely to decline in the future as farms become larger and more specialized, reflecting a trend prevalent throughout the U.S. agricultural sector. In the future, the large specialized grain producer may not bother to utilize uncropped land as pasture for a few cows. However, it is likely that herds of 20 to 50 cows in size will predominate throughout much of the humid regions. Large range operations on western arid lands likely will continue and remain near current

[15]For a more complete discussion see G. Alvin Carpenter, Livestock Industry Trends: Implications for Cooperatives. FCS Information 92. Farmer Cooperative Service, U.S. Dept. of Agriculture. April 1973.

size because of the high investment needed to finance expansion and low returns in cow-calf enterprises.

As population grows and the demand for beef continues to expand, stronger price incentives will encourage the shift of land resources to feeder calf production. Since the arid regions of the west are near their capacity for carrying cows, the trend toward a larger relative share of production in the humid areas of the Nation will likely continue. It has been estimated that by 1980, 46 percent of the beef cow herds would be located in 13 Southern States.[16]

However, this forecast is somewhat clouded by the expected high cost of nitrogen fertilizer associated with high natural gas prices because improved pastures in humid areas require heavy fertilization. Overall, the basic cow-calf enterprise in the humid areas will likely retain aspects of a supplemental enterprise because mostly marginal land will be devoted to pasture and cow-calf operations.

During the upcoming years, the recent shift away from breeds of English origin in the Nation's beef cattle herd will likely continue. The larger exotic breeds have performed well in feedlots, stimulating interest in shifting to crosses containing exotic blood lines.

Because the bulk of cow-calf operations consist of rather small herds, the feeder market will continue to serve an important function as the first assembly operation. Most of these assembly functions have been performed by auctions, dealers, and order buyers. Producers marketing associations have played an important role in assembly of feeder cattle in some regions. Whether they be cooperatives or proprietary firms, dealers, order buyers, and auctions will by necessity continue to perform the assembly function. Large cattle feedlot operators will continue to rely on either their own buyers or order buyers to attend auctions and contact dealers to procure their feeder cattle.

While there is no clear trend indicated, the market may face more order buyers procuring feeder cattle for large feedlots. Also, there is potential for some type of electronic exchange through use of computers or teletype or telephone auctions, but more definitive grade standards will have to be devised for these animals before electronic marketing is introduced.

Both the proportion of cattle fed concentrates and the location of feeding will be influenced by the future level of grain prices. The concentrate feeding of a high percentage (65-75 percent) of slaughter cattle marketed is likely to continue unless grain and protein prices reach very high levels. Concentrate feeding still is the most economical means of producing the last 150 pounds or so of weight gain on cattle. However, the length of the concentrate feeding period probably will be considerably shorter than in the early 1970's, with cattle being carried to heavier weights on grass and other roughages before being put on concentrate feed.

If feed prices continue moderately high, there may be continued concentration and a shift away from the Corn Belt to feeding locations where climate is more favorable. On the other hand, there could be a relative gain in the proportion of cattle fed in the Corn Belt if corn prices hold near production cost and there is an advantage for corn producers to market their grain through livestock.

Large feedlots maintain direct contact with packer buyers who visit the lots and buy direct. These large feedlot operators will continue to work directly with packer buyers.

Small feeders, on the other hand, are unable to attract packer buyers because of the low volume of cattle they have for sale. The smaller feeders have relied more on terminal

[16]Carpenter, G. Alvin. 1970 Southern Beef Conference Proceedings. pp. 25-33.

markets, and some Corn Belt terminals remain as viable marketing alternatives. But in recent years these outlets have become less important in many areas and small feeders have turned to marketing more of their cattle through auctions. The trend is likely to continue and there will be a further decline in terminal markets. Thus, small feeders will have more problems in finding buyers to deal with, particularly for direct sales. However, the number of fed cattle marketed directly to packers through cooperative feedlot sales programs likely will expand.

With the demise of many antiquated and inefficient plants, cattle slaughter has shifted to new plants located near major production areas. Initially, many of these plants were owned by new firms entering the industry, thus tending to reduce industry concentration. Some of these firms found they could not operate profitably given their volume, so plants were sold to larger, established firms. This has resulted in a rise in concentration in the slaughter industry, and firm concentration is expected to increase over the years.

More than 90 percent of the cattle are now slaughtered in plants operating under Federal inspection. Given the cost of maintaining acceptable State inspection systems and restrictions on distribution of State inspected meat products, it is likely that virtually all livestock will be slaughtered under Federal inspection in the years ahead.

The wholesale beef market has long been a market with a relatively homogeneous product, with most beef being marketed in carcass form. This paved the way for beef grading activities since the majority of carcasses were marketed with a USDA quality grade of Prime, Choice, Good or lower manufacturing beef grades. Currently, the carcass market is limited primarily to the Missouri and Mississippi River markets and a few other Midwest wholesale market areas. While carcasses may account for nearly half of the total beef sold at wholesale, the trend for this type of market is down. More functions are being shifted back to the meatpacker as retailers become more interested in the purchase of primals and subprimals, and even retail cuts from the packer. Retail chains have found that buying primals and subprimals allows them to gear their operations more closely to consumer demand in their individual areas.

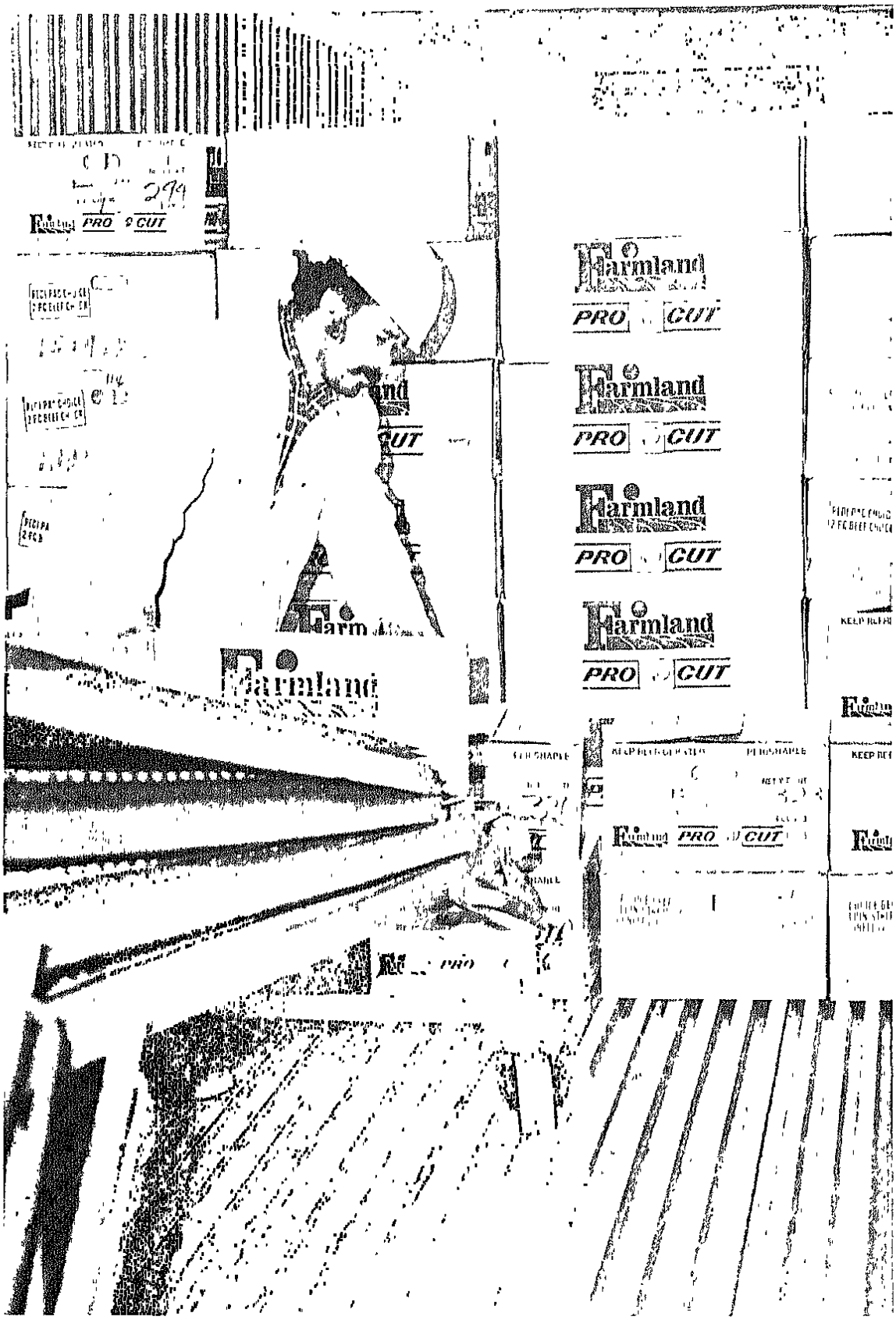
While retail firms maintaining large central warehouse operations may continue to utilize carcass beef, some form of fabrication is taking over. The shipment of beef sides and quarters to retail stores declined from an estimated 48 percent of their total beef in 1972 to 31 percent in 1974. The percentage of beef received in carcass form is expected to further decline to about 11 percent by 1980. Retail store use of primals and subprimals is therefore expected to increase from 51 percent of all their beef in 1972 to 79 percent by 1980.[17]

The fabricated beef market has been particularly attractive to the growing food service trade. Buyers are able to specify the type, quality, and size of product desired and have it delivered ready to use in their individual operations. The purchase of cuts of less than subprimal portions will likely continue to be particularly attractive to food service firms.

The introduction of boxed beef has achieved some transportation efficiencies and increased storage life and ease of handling. A recent study indicates, however, that "boxed beef is not necessarily as great a cost saver as many persons have assumed."[18] New technologies, particularly the Cryovac packaging process, have enhanced this means of distri-

[17]Allen, John W. "A Look at Trends in the Meat Industry - 1975." Presented at the 1975 Super Market Institute Convention Workshop. May 6, 1975.

[18]Duewer, L. A. and T. L. Crawford. Alternative Retail Beef Handling Systems. ERS-661. Econ. Res. Serv., USDA. July 1977.



A growing proportion of beef is being fabricated by packers into primals and subprimals and shipped as boxed beef rather than in carcass form.

bution. Boxed beef and portion control products will continue to gain acceptance at all levels of distribution.

The movement to boxed beef could enhance private branding of beef products at the wholesale level and result in less use of federal beef grades. A few large firms already have moved toward use of their house brand and quality designation on boxed beef. Since this beef may not be graded at the slaughter level it cannot presently be graded at some other point in the distribution system. Private branding at the wholesale level also will encourage packers to brand retail beef cuts when the marketing of frozen beef comes to the industry. However, new technology will need to be implemented at both the slaughter and retail levels and consumer acceptance gained before distribution of frozen beef can become a reality.

Most meat sold at retail is distributed through large retail chain store operations. There has been some growth in specialized retail meat markets in large metropolitan centers in recent years, but they handle only a small proportion of the beef and are not likely to become a significant factor in beef retailing.

The large corporate retail chains, as well as the voluntary and cooperative retail chains, have found some efficiencies in fabricating beef carcasses and primals into wholesale and retail cuts at central warehouse units. Such operations eliminate or reduce the need for cutting and packaging operations at individual retail stores. The percentage of total beef retail stores received from a distribution center rose from 55 percent in 1972 to 65 percent in 1974, and is expected to reach 93 percent by 1980.[19] Meat fabricating and distribution centers are likely to be the trend of the future. However, they probably will be fabricating primals and subprimals rather than carcasses and they may not be owned by retailers.

What are the implications of these trends for the industry? With the increased demand for breeding stock of exotic origin, there likely will be an increase in artificial insemination of the beef herd. This will be possible as a larger proportion of the Nation's cow herd is located in regions other than the western range States where semi-confinement is not practical. But new developments in estrus control will also be needed.

Cattle feeding will likely continue in large units; however, the source of capital may be different with many medium and large size cow-calf producers choosing to market their calves by placing them in custom feedlots for finishing. These producers will require additional credit sources to finance the feeding operation. If the trend toward more concentrated feeding units continues, feeders will have better market information and probably will sell virtually all of their cattle directly to packers. On the other hand, if there is some renewed interest in feeding cattle in the Corn Belt area, feeders there would need additional marketing assistance.

The trend away from central markets points to pricing efficiency problems. Better market information is needed and more buyers need to be drawn into any market situation. New marketing methods, such as an electronic exchange, might receive increased interest. However, since most feeder cattle will be produced in herds of 50 units or less, the need for a market assembly process will continue, especially in the native States. Any method of substituting communication for physical moving of stock to markets will also require development of a better system for describing livestock.

[19]Allen, op. cit.

Feedlot operators have been reluctant to market cattle on carcass grade and weight without the involvement of a disinterested third party grader and weighmaster or their own representative. This may point to an expanded role for USDA graders and cooperatives.

The potential for shifting the cutting of carcasses into subprimals back towards the slaughter plant will likely be dictated by the inherent efficiencies. This calls for the development of new methods and new equipment for handling products such as boxed beef. It will also necessitate a new inventory management strategy, particularly if frozen beef should be introduced.

Pork

Feeder pigs are usually produced in the fringe areas of the Corn Belt where the supply of grain available for finishing is limited. Historically, about 20 percent of the pigs have been produced in these areas. Currently, hog production is shifting to larger confinement and semiconfinement farrow-to-finish operations where quality and health can be better controlled. Because of the need for improved quality and health control, traditional feeder pig production systems, where animals are produced by separate firms and then sold for further feeding, may show a steady downward trend. However, a new type of production system, where feeder pigs are produced at a separate facility by the same owner or owners before being introduced to feeding facilities, may well be on the rise. These farrowing corporations or cooperatives have found particular acceptance in Nebraska and Iowa in the last few years.

Hog production will continue to be important in the 14 major hog States. Farrow-to-finish operations are likely to remain the backbone of hog production and continue to be concentrated in the Corn Belt. These operations will continue to grow in size, shifting to large confinement and semiconfinement production units where sows are farrowed on a year-round basis.

Overall, hog production growth is expected to be limited to a rather stable per capita demand, with production averaging about 65 pounds per person. However, population growth will induce a steady upward growth in total hog numbers.

As the size of hog-finishing operations increases, the shift to more direct marketing will continue. Production units may well become large enough for packer buyers to visit the production facility. Packers have found that operation of buying stations is expensive. Many have shifted to direct delivery at plants.

Historically, some hogs have been slaughtered and marketed at wholesale in carcass form, but this has become virtually nonexistant. Almost all packers maintain both slaughter and processing facilities, although there is considerable trade in pork primals for further processing. In the future more cutting is expected to be done at packing plants, with each firm marketing more of their own individual subprimal or even retail products with house brands. Firm branding of processed pork products is necessary if one is to maintain a market at the retail level. Relatively more pork is marketed for direct home consumption than through the food service trade; thus branding becomes more of a marketing necessity.

Most of the marketing and distribution trends discussed for beef can also be applied to pork.

These trends have several implications for the pork industry. Larger production units of a confinement or semiconfinement nature will require more capital. While large farrow-to-finish systems likely will predominate, there is potential for growth in large feeder pig production units with separate finishing facilities.

There probably will be more direct marketing of hogs in larger units, but producers of smaller lots may encounter difficulty in securing buyer interest because of their limited scale. There appears to be considerable potential for the development of a market exchange system which will substitute communications for physical movement of livestock, buyers, and sellers. Grades for hogs and pork have not been widely accepted, but a widely used grading system would be mandatory before any kind of electronic exchange system could be substituted for the current marketing process.

The pork industry already has a well-developed market for non-fresh items. This market is heavily dominated by branded products. This trend likely will continue. This will make it difficult and expensive for new firms to enter the industry and capture a share of the retail market.

Sheep and Lambs

On January 1, 1977, there were fewer sheep and lambs on U.S. farms and ranches than at any time in our Nation's history. The inventory of sheep and lambs has declined every year since 1960. However, the number of ewe lambs being held for breeding purposes increased during 1976, the first time in many years. This may signal a temporary pause in the long-term downtrend. But, producers continue to be beset by production problems of obtaining adequate labor and controlling predators and disease. Many are faced with alternatives that offer more attractive returns on investment. The long-range prospects are for further decline in the U.S. sheep and lamb flock.

Lamb production will likely continue to decline in most areas of the country. The regional pattern of sheep production is not expected to change significantly, and most of the Nation's flocks will continue to be located in areas of the west on grazing land that will not support other species of livestock.

Producers face a further decline in the market for lamb which likely will be increasingly centered in ethnic groups living in the eastern and western seaboard States. Some producers have also been discouraged by a decline in the demand for wool and low wool prices. The last few years, however, have been an exception as current fashions have turned again toward wool, especially in blends with other natural and synthetic fibers.

The number of slaughter plants serving the lamb industry has declined with the decreased availability of slaughter lamb supplies. Many areas are able to support only one or two plants that slaughter lambs along with other livestock species. Similarly, the industry is able to support only a limited number of lamb markets. The inability of the industry to support many markets or slaughter-processing facilities has resulted in fewer lamb buyers, compounding the problem of maintaining a competitive marketing system.

Since the long-term downward trend in the sheep and lamb inventory is expected to persist, producers will continue to face fewer buyers. The necessity for some type of innovative marketing system is becoming more evident. An electronic exchange marketing system holds a strong potential and is already being tested in some areas of the country.

POTENTIAL COOPERATIVE ROLES

Livestock is produced on more than one million farms, but the bulk of it is sold to just a few hundred slaughter plants. There is, therefore, a wide disparity in size and market power between producers and slaughterers. While farms will continue to become larger, it is unlikely that even a few farms will be able to supply the total needs of a single slaughter plant. Hence the disparity between sellers and buyers will continue.

A few large "superfarms" do exist in livestock and other farm enterprises and their number is slowly increasing. Studies have shown that superfarms do not produce any more efficiently than family farms.[20] However, the large farms enjoy certain advantages in purchasing inputs and selling their products because of the volume handled. Family farms, even large ones, can achieve many of the same advantages by working together through cooperatives. Therefore, cooperative activities are a means of achieving the countervailing power for producers necessary to maintain an efficient family farm agriculture.

Based on the preceding analysis of the red meats industry, there appear to be several roles in which cooperatives might be cast. Any one or a combination of these could help family farmers maintain and enhance their position in the red meats industry of the future.

Maintain an Open, Competitive, Live Market

One alternative role for cooperatives is to develop and operate a marketing system that will maintain open competition among buyers in the pricing of livestock and ensure producers access to the market. Such a system would bring buyers and sellers together over a wide geographic area, set forth the rules under which prices are established and ownership transferred, and provide for public reporting of meaningful market prices that will guide the distribution of currently available products and the allocation of resources for future production.

To be effective this marketing system should take the form of a centralized electronic exchange, utilizing modern communications technology to bring buyers and sellers together in an exchange environment without their physical presence. The centralized exchange might be a teletype auction, such as is used to market hogs in several Canadian Provinces. It might also be a computerized exchange that would match bids and offers and consummate sales, or some other sort of mechanized exchange. A producer cooperative would operate the exchange, but other firms could participate in the system by providing assembly facilities, transportation, and related services.

As pointed out in the earlier discussion of meatpacking concentration, four-firm slaughter concentration ratios at the State level probably understate the degree of buyer concentration in local markets for livestock because a particular packing plant's area of price-making influence usually is smaller than an entire State. A centralized exchange would make it possible for packers to be effective bidders on more distant livestock. In turn, the livestock of any given producer would be exposed to a larger number of buyers, diminishing the tendency toward price being determined by just a few buyers. At the same time, maintenance of an open market would guarantee that producers have market access.

[20]Dennis R. Henderson cites several references in "Collective Market Action: Its Potential Impact on Farm Structure," a contributed paper at the American Agricultural Economics Association annual meeting, Gainesville, Fla., Aug 20-23, 1972.

This is one prerequisite for maintaining livestock production in the hands of independent family farm operations.

In reference to the Canadian teletype auction systems, Engelman[21] points out that in such systems, "Improvements in the level of competition stem from three separate sources: (1) the enlarged market area and improved buyer access to available supplies, (2) buyer anonymity during trading, and (3) organized producer control of the terms of trading." Depersonalizing the trading process "removes the likelihood of many anti-competitive trade practices...It dilutes the power of the dominant buyer to exert price leadership when only a few firms are active, to have tacit understanding as to price, to allocate trade territories, or to discipline other buyers who 'encroach' in his competitive areas." Producers also have a degree of control over the marketing system by having a voice in establishing the terms of trade and, through their organization, policing the industry to ensure that participants abide by the trading rules.

Development of a centralized electronic exchange might be achieved in one of two ways. The first might be called the voluntary cooperative alternative. A multi-State cooperative could be organized by producers and existing cooperatives to operate the exchange, with existing cooperatives and other firms performing assembly and transportation functions. Producers of a substantial proportion of the livestock produced in the major production areas would be required to sign marketing agreements with the cooperative to market all their animals through the centralized exchange. This would be necessary to ensure that the cooperative would be effective in getting buyers to use the exchange.

The other alternative would involve the establishment of a producer-controlled marketing board to operate the centralized exchange and establish the rules of trade. This alternative is used to operate the Canadian teletype auctions for slaughter hogs. It would require the passage of enabling legislation to authorize the establishment of a marketing board and define its powers. Among these would be the power to establish the terms of trade and to require all major slaughterers to utilize the exchange. Implementation of a marketing board probably would require producer approval in a referendum. As in the voluntary cooperative alternative, existing cooperatives and other firms might perform assembly and transportation functions.

Achievement of the open market role by cooperatives through either means will require a substantial change in attitude on the part of most livestock producers. They will need to commit themselves to a single marketing method rather than having several alternatives available as they have today. This commitment will be necessary whether it be in the way of a marketing agreement with a voluntary cooperative exchange or their support for a marketing board. Without producer commitment to the centralized electronic exchange concept, neither a voluntary cooperative exchange nor a marketing board is likely to be organized.

The capital requirements for a centralized electronic exchange could be sizable, but would be small compared to those for meatpacking operations handling a similar volume of livestock. There are sufficient livestock handling facilities available that could be leased, or operated by the present owners, to provide for the assembly function. As producing units get bigger, more livestock could be moved from the farm or feedlot direct to the buyer without going through assembly facilities. Little fixed investment would be

[21]Engelman, Gerald *Competition and Concentration in Livestock Marketing—Sequel to Trends in Livestock Marketing Before and After the Consent Decree of 1970 and the Packers and Stockyards Act of 1921.* Speech presented to the Agriculture Committee Meeting of the National Planning Association, Oct. 25, 1975. U.S. Department of Agriculture, Packers and Stockyards Administration.

required for the exchange itself as most of the communications and auction equipment could be leased.

The major capital need would be for funding development and startup costs and for operating capital. With a voluntary cooperative exchange considerable cost would be involved in conducting educational programs and getting producers signed up on marketing agreements. Part of this expense might be borne by producer organizations, general farm organizations, and existing cooperatives.

A major operating capital need would be for the maintenance of a custodial account for shippers' proceeds, a need that usually is met through a bank line of credit. For example, a cooperative exchange handling 75 percent of the slaughter hogs in the 11 important Midwest hog States would market an average of $16.3 million worth of hogs a day at present prices. This volume of sales could require up to $10 million in custodial fund capital. If a cooperative handled 75 percent of the fed cattle in 14 of the important cattle feeding States (Ohio to Colorado and South Dakota to Texas) it would have average daily cattle sales of $25.9 million. The cooperative might need as much as $14 million to maintain a custodial account for this volume of cattle sales. Total operating capital requirements (including custodial funds) might be as much as $15 million for a hog exchange ($.23-.27 a head handled annually) and as much as $18 million for a fed cattle exchange ($.74-.88 a head) if they operated only in the central part of the country.

Under the marketing board alternative, development and startup costs likewise would be substantial. An educational program would be needed not only for producers but for legislators who would be responsible for passage of enabling legislation. Costs would be incurred for writing the order, holding hearings, and conducting a producer referendum. Assuming non-Government cost liabilities similar to those incurred in the effort to pass the Beef Research and Information Act, hearing and referendum costs might total as much as $70,000.

Additional capital would be needed for financing current operations. However, the enabling legislation for a marketing board likely would exempt the board from the requirement to maintain a custodial account. Operating capital requirements thus could be smaller than for a voluntary cooperative exchange.

The cost of marketing livestock through a centralized electronic exchange probably would be lower than the cost of most marketing methods currently in use. In an evaluation of eight alternative marketing methods for fed cattle, Johnson[22] estimated that total direct marketing costs would be lower for a teletype auction than for all other methods except consignment sales to packers, a little used marketing method. The teletype auction also would have lower total costs (commission, yardage, buying, transportation, yield difference, and killing efficiency) than all other methods except consignment sales to packers. A producer's cost for marketing slaughter hogs through the Ontario (Canada) Pork Producers Marketing Board is considerably less than the cost for most marketing methods currently used in the United States.

Bargaining

Bargaining is a process by which producers of a commodity join to negotiate prices and terms of trade with one or more processors or other handlers. Producers form a bargaining association and hire competent staff to assemble appropriate information about costs of production, costs of handling and processing, expected costs and revenues of pro-

[22]Johnson, Ralph D. An Economic Evaluation of Alternative Marketing Methods for Fed Cattle, Nebraska Agricultural Experiment Station and U.S. Department of Agriculture, SB 520, June 1972.

cessors, supply and demand, and other factors. Processors gather similar information and the two parties meet to negotiate prices, quantities, and other terms of trade.

Bargaining has been used for years by organized labor to negotiate wages and terms of employment with employers. Bargaining also is used by producers of milk and fruits and vegetables for processing. Cooperatives have attempted to bargain for the sale of hogs, but only the National Farmers Organization (NF0) has continued with the concept beyond the pilot stage.[23]

Bargaining could be used for all types of livestock but would be particularly applicable to those types produced for slaughter, such as fed cattle, butcher hogs, and lambs. A separate program should be considered for each type of livestock because many producers and packers specialize in only one or two types, and one type cannot be substituted for the other in processing. However, a bargaining association should handle more than one type to provide complete marketing service to multispecies producers and serve the needs of multispecies slaughterers. The larger volume handled also would reduce overhead costs per unit. The bargaining process for each type is essentially the same, and could be coordinated through one central office.

Producers would bind their production to the bargaining association by marketing contracts. The association could then negotiate a contract with processors with assurance that members would deliver the agreed upon quantity and quality of product on schedule. A contract with a processor would specify the terms of trade and the price, or pricing formula, and would cover deliveries of product over a specified period of time.

Bargaining could be used to achieve a number of benefits. Foremost is the opportunity to obtain higher prices and better terms of trade for producers. If a large number of producers unite, they have an opportunity to influence the decisions of processors by limiting processors' alternative sources of supply and to increase the number of outlets open to producers. The group also has more resources to accumulate market information, and develop and implement alternative marketing strategies. Pricing accuracy and the flow of market information to producers could thus be improved.

Bargaining also could give producers the opportunity to coordinate their production with packers' needs and make the red meats industry more efficient. Finally, bargaining is a means of maintaining the viability of family farms by giving them the market advantages of very large scale operations in maintaining access to markets and in negotiating favorable prices. However, this can be achieved only if the association controls a sizeable volume of livestock needed by processors.

Many factors influence the probability of having a successful bargaining association. One factor is the approach taken by the association. An association would have more difficulty negotiating favorable terms of trade on the basis of size or "brute force" alone than it would if it could also improve coordination of livestock production with packers' needs. Force alone is unlikely to be effective because livestock is produced over a broad geographic area and by a large number of producers. A single association is unlikely to control enough livestock to cut off a packer completely from alternative sources of supply. However, improved coordination offers some benefits to the packer for which he might be willing to pay. An effective bargaining association is likely to be one that exercises some control over the quantity, quality, and timing of production and can merchandise those services to a packer.

A second factor related to success is the market share controlled by the association.

[23]Spot-market negotiated sales that some large regional livestock cooperatives use in their hog "sales desk" operations are not considered as bargaining.

Market share should be directly related to the success of negotiating favorable contracts with processors. The greater the share, the greater the probability of getting packers to accept the association's contract terms, and the greater the probability of being able to provide packers with the quantity, quality, and type of livestock desired on a timely basis.

Market share will depend upon the willingness of producers to commit their livestock to the association and to remain loyal to their commitment. Livestock producers seem to be most insistent about retaining traditional decisionmaking functions rather than turning certain of these functions over to their cooperative. In addition, a bargaining cooperative would almost certainly meet with resistance from established buyers who may feel their survival is threatened by the new marketing method. These buyers may offer above-market prices or better contracts or engage in other practices to discourage bargaining. A bargaining association would need funds and producer commitment to withstand the battle.

A third factor affecting success will be the supply response of association members and nonmembers to gains from bargaining. If the association is successful in increasing returns to members, they will want to produce more livestock and more producers will want to join the association. At first, the added volume of livestock may improve the bargaining position of the association by enabling it to make larger and more exact commitments to packers. Eventually, however, the success of the association could increase total livestock supplies and depress overall price levels, passing at least some benefits of bargaining on to consumers. The association would retain more of the benefits if it could increase consumer demand for meat or adjust supply. But both remedies are limited. Demand is limited by income and tastes of consumers. Supply adjustment is limited by lack of public support and legal authority for restricting the quantity of food produced.

The desire of producers to become members or to remain independent will depend on the benefits achieved from bargaining. The association should continue to seek new members in order to control a larger share of the market, but limits on members' decisionmaking prerogatives may cause many producers to stay outside the association. However, if the association can receive payment for improved coordination of production and processing that nonmember producers cannot match, there will be an incentive to join.

Other possible supply responses outside the control of the bargaining association include packers producing their own livestock, increased imports, and more meat substitutes. Again, the extent of these responses will depend on whether improved returns to association members are economically justified. Bargaining for unjustifiably high livestock prices would encourage packer development of alternative sources of supply, whereas improved coordination would discourage such development by making traditional meat producers and packers more efficient.

Bargaining is more likely to be successful in markets with many sellers but very few buyers, or where a high proportion of the livestock is produced under marketing contracts with buyers. Such markets are likely to provide a greater incentive for producers to implement a bargaining association and to remain committed to it. Markets with very few buyers tend to provide a disproportionately large share of benefits to buyers because they have so much more market power than producers. These markets also tend to be less efficient than competitive markets because buyers tend to be less responsive to change. In these circumstances a bargaining association could improve the market power of producers and increase efficiency.

These favorable conditions are plainly evident in the lamb industry. Therefore, bargaining is more likely to be successful in lamb markets than in the relatively more com-

petitive and efficient markets for fed cattle and butcher hogs. Two factors could change the current market structure to make bargaining more likely for hogs and fed cattle. One, processors may move from spot market purchases to contracts with individual producers to control the quality, quantity, and timeliness of delivery to their plants. Two, processing may become concentrated in the hands of a few large firms. Under both circumstances, producers' market access would be restricted and their market power reduced relative to packers. Producers probably would have to organize to protect their position in the industry.

If bargaining is going to be successful for livestock producers, some additional legislation is likely to be needed. Bargaining is already permitted under the Capper-Volstead Act. In addition, the Agricultural Fair Practices Act of 1967 makes it unlawful for processors to coerce producers into joining or refrain from joining a bargaining association or to discriminate among producers on the basis of their membership in such an association. However, additional legislation is needed to facilitate the development of bargaining associations and strengthen farmers' bargaining position for the sale of their products.

Several bills, such as the Sisk Bill, have been introduced in Congress in recent years. The Sisk Bill would amend the Agricultural Fair Practices Act to give farmers bargaining rights similar to those available to nonagricultural workers and professions. This amendment would establish standards for certifying or recognizing bargaining associations. The amendment would also require processors to bargain in good faith.

The Michigan legislature recently enacted legislation similar to the Sisk Bill. The 1973 Michigan Agricultural Marketing and Bargaining Act gives producers the right to "exclusive agency bargaining" for perishable fruits and vegetables.[24] The Michigan law is not fully effective in protecting producers' bargaining rights because many processors can readily obtain supplies and process them in other States.

Coordinate Production, Processing, and Distribution

The livestock-meat industry is composed of several interrelated stages. For example, cattle are born, weaned, grown, finished, slaughtered, and processed, and beef is distributed, and retailed. Between each of these stages a marketing function may occur. Currently, the functions in each stage are largely performed by separate entities and there is little coordination between stages. Greater coordination between the various stages in the system could result in improved efficiency, product suitability, and profitability for the coordinators.

Many cooperatives market slaughter livestock today, but few attempt to coordinate production with marketing. Instead, the cooperatives market whatever producers happen to offer whenever they offer it. Most of these cooperatives do not have established quality specifications, husbandry practices, and other standards for production of finished livestock with a reputation and on a schedule that will bring premium prices because they meet the specific requirements of buyers.[25] An effective coordinated system should determine the type of animals buyers want and what they are willing to pay for them as well as how various delivery schedules would affect buyers' processing costs and returns. This

[24]For more detailed discussion see James D. Shaffer and Randall E. Torgerson, "Exclusive Agency Bargaining" in Marketing Alternatives for Agriculture, Cornell University, 1976.

[25]A few cooperatives have programs for specification production of breeding and feeder livestock, particularly swine.

information must then be communicated back to producers in a way that brings about the desired production at maximum profits to producers, whether the livestock is sold to packers or processed by a cooperative.

Coordination in the red meats industry probably will improve in the future. The firms that coordinate all or many of the stages could deliver a given quality and quantity of livestock or meat to match a particular buyer's specifications. This is needed in today's market of specification buying.

Cooperatives are in a unique position to coordinate all the stages because they are owned and controlled by producers who have initial control of the animals. Producers own livestock longer than any other participant in the system and contribute the most to their value. They also should be interested in a total cooperative system because they have limited resource mobility. Producers have a greater incentive than nonproducers to develop and control an efficient and effective livestock system because many of their production resources cannot be easily employed in nonlivestock enterprises.

Firms in other segments of the industry make decisions based on alternative investment opportunities for their more mobile resources without regard to the effect of these decisions on producers and the industry. Many large packers, for example, are now owned by conglomerate corporations that may suddenly decide to close a packing plant because of better investment opportunities in other industries. Producers selling to that plant suddenly are faced with one less buyer.

An entire system from the production of feeder animals to the wholesaling of meat products could be coordinated by a single cooperative. Producers could organize the cooperative and through their elected board of directors establish operating policies, production standards, and regulations. These guidelines would be the basis for contracts between individual producer-members and their cooperative. By means of contracts the cooperative would direct member production and synchronize all activities to provide the quality and quantity of livestock that could be effectively handled and merchandized by the cooperative and thereby maximize total net returns to producers.

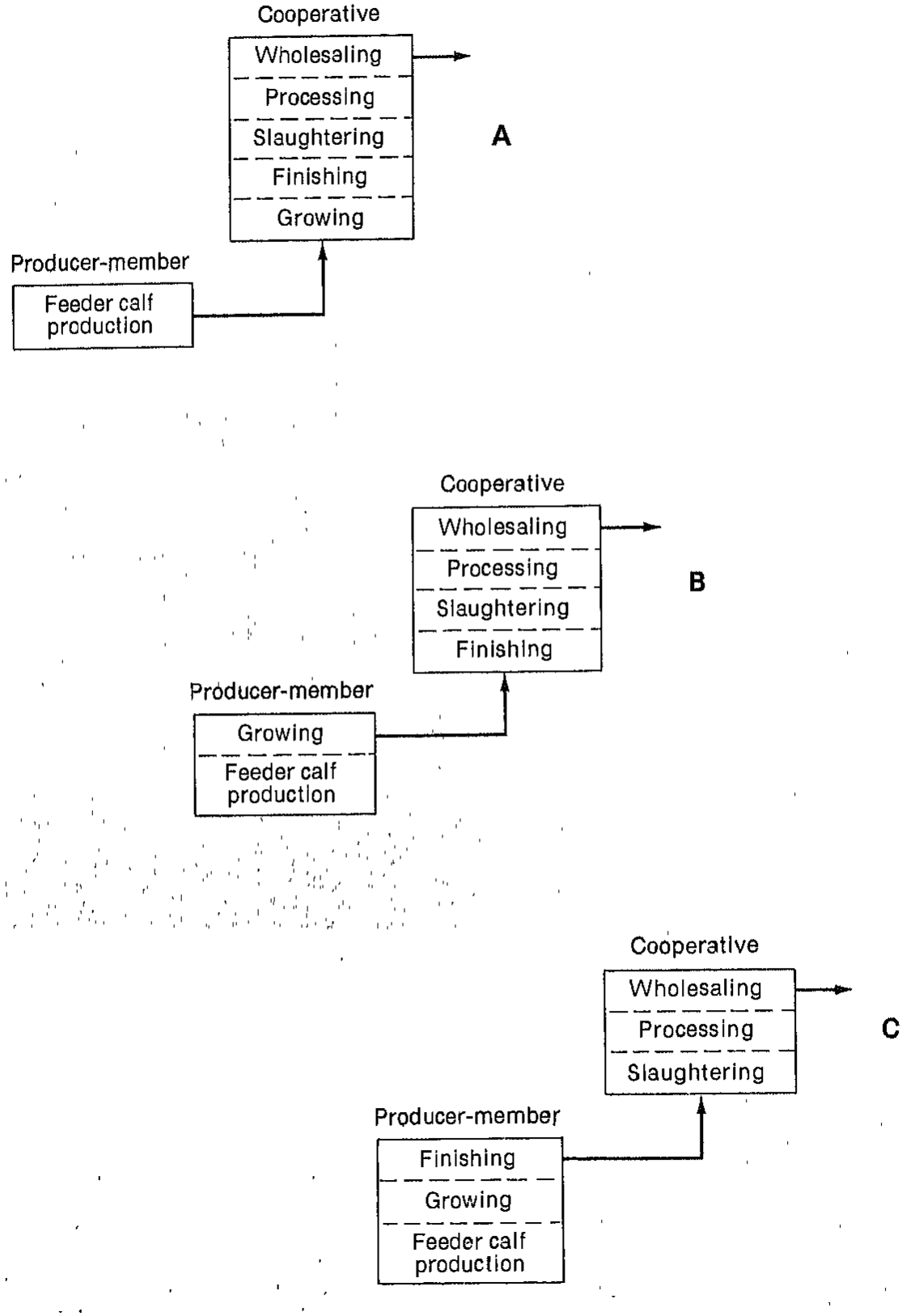
Several benefits could result from a cooperative-coordinated system. Through cooperatives, producers could gain control of all the stages, retain title to their livestock longer, and receive profits arising from control of succeeding stages. Other benefits would be derived primarily from increased system efficiency. Improved animal quality could reduce waste through greater feed efficiency and a higher percentage of usable meat in processing. Improved timing of deliveries could result in less day-to-day and seasonal fluctuation in supplies and more efficient use of production, processing, and distribution labor and facilities. A more reliable flow of animals through packing plants would assure more efficient use of labor that has a guaranteed work week—even if supplies are short—and receives overtime pay when more animals than usual must be slaughtered. Some degree of quantity control also may be possible which could dampen cycles. But for the most part, cycles are dependent on outside factors that cannot be controlled by the cooperative.

Cattle-Beef System

A cooperative-coordinated system would begin with feeder calf production on members' farms, and weaned calves would be delivered to the cooperative. Growing and finishing would be conducted by the cooperative in its own facilities or in leased facilities. Or the cooperative might contract with a third party to provide complete growing and finishing services on a custom basis (fig. 2A).

By coordinating a complete livestock-meat system through their cooperatives, producers could own livestock longer and receive profits from succeeding stages, such as feeding.

Figure 2--Coordinated cooperative systems for cattle-beef production



Some producers might do their own growing or finishing under contract with the cooperative and deliver their cattle at a different stage in the system (fig. 2B and 2C). Regardless of who actually performs the feeder calf production, growing, and finishing functions, they all would be done according to the specifications established by the cooperative that coordinates all production activities with slaughtering, processing, and wholesaling.

Slaughtering and processing could be done in a plant owned or leased by the cooperative or on a custom basis with an existing packer. Likewise, the cooperative could merchandise the beef with its own sales force or through the services of a broker.[26]

If the cooperative procured growing, finishing, slaughtering, processing, and wholesaling services on a custom basis, it would have a much smaller capital requirement and payroll and greater flexibility than if it owned or leased facilities. Custom operations also could reduce the risk of financial loss from poorly managed operations that otherwise would be owned by the cooperative. By using custom services, the cooperative could concentrate on improving coordination of the successive stages. As the cooperative became experienced in the coordinating role, it might be able to take advantage of some opportunities to own and operate more facilities.

Leasing would make the cooperative responsible for managing, staffing, and operating facilities without the capital outlay necessary to own them. It could be an intermediate step to facility ownership.

The issue of ownership is not as important as the issue of control. The cooperative should be placed in a position of control so it could coordinate the quality, quantity, and timing of calf production, growing, finishing, slaughtering, and processing in a unified response to retailers' and consumers' needs. As part of this control, the cooperative would need to have the option to sell cattle committed to the program at any stage necessary to achieve the objective of maximum total returns to producer-members.

As cattle flow through the system, the cooperative would check performance at each stage and pass results back to producers so they could make appropriate production adjustments. The cooperative would hire fieldmen who would regularly visit farms and feedlots where calves are born, grown, and finished. Fieldmen would act as advisors and assist producers in complying with their contract. They would also keep cooperative management informed about the progress of cattle in the program. Management would schedule the growing, finishing, slaughtering, and processing services accordingly.

In addition to coordinating the flow of cattle, the cooperative would have to provide credit to producers. If producers, through their cooperative, retained ownership beyond traditional stages, they would upset their normal cash flow. The cooperative could extend loans to producers, it could make an initial payment to producers at delivery followed by a final payment after the meat was sold, or it could pay producers market price at the time of delivery. In the last case, however, the cooperative would need greater financial resources to pay producers and bear the risk of price declines.

Additional flexibility could be incorporated in the coordinated cooperative system by allowing producers to exit, as well as enter, the system at each stage. Providing a marketing function at the end of each stage would facilitate exit. It should be recognized, however, that permitting such exit would reduce the cooperative's control and its ability to effectively coordinate the system.

Care must be exercised in organizing the feedlot and processing segments of a coor-

[26]For more detailed description of a coordinated cattle-beef system and a discussion of expected advantages and disadvantages see Clement E. Ward, A Contract Integrated Cooperative Cattle Marketing System, Marketing Research Report 1078, U.S. Department of Agriculture, 1977.

dinated operation to avoid activities prohibited under the Packers and Stockyards Act. Recent regulations promulgated under the Act prohibit joint ownership or interest in custom feedlots and packing plants.

Hog-Pork System

The most common method of slaughter hog production is for the same producer to farrow pigs and finish them. Hogs usually are also slaughtered and processed in the same plant. In addition, pork production time from breeding to consumption is relatively short, enabling fairly rapid genetic change and production response to changing economic conditions. Hence, the hog-pork system ought to be easier to coordinate than the cattle system.

The objective of a coordinated hog-pork cooperative would be to synchronize breeding, farrowing, finishing, slaughtering, processing, and wholesaling to satisfy demand for pork at least cost. Individual members would produce slaughter hogs under terms of a contract with their cooperative (fig. 3A). Contract terms, including production standards and rules, would be approved by the cooperative's board of directors and executed by its management. These standards might include: (1) the selection and approval of gilts and boars, (2) a health, sanitation, and feeding program, (3) minimum housing and facilities, and (4) performance recordkeeping.

The cooperative would employ fieldmen to assist members in meeting the standards, production problems, and improving production performance. The fieldmen would also determine when hogs were ready for slaughter and keep the cooperative's management informed concerning the number and quality of hogs available in any given week.

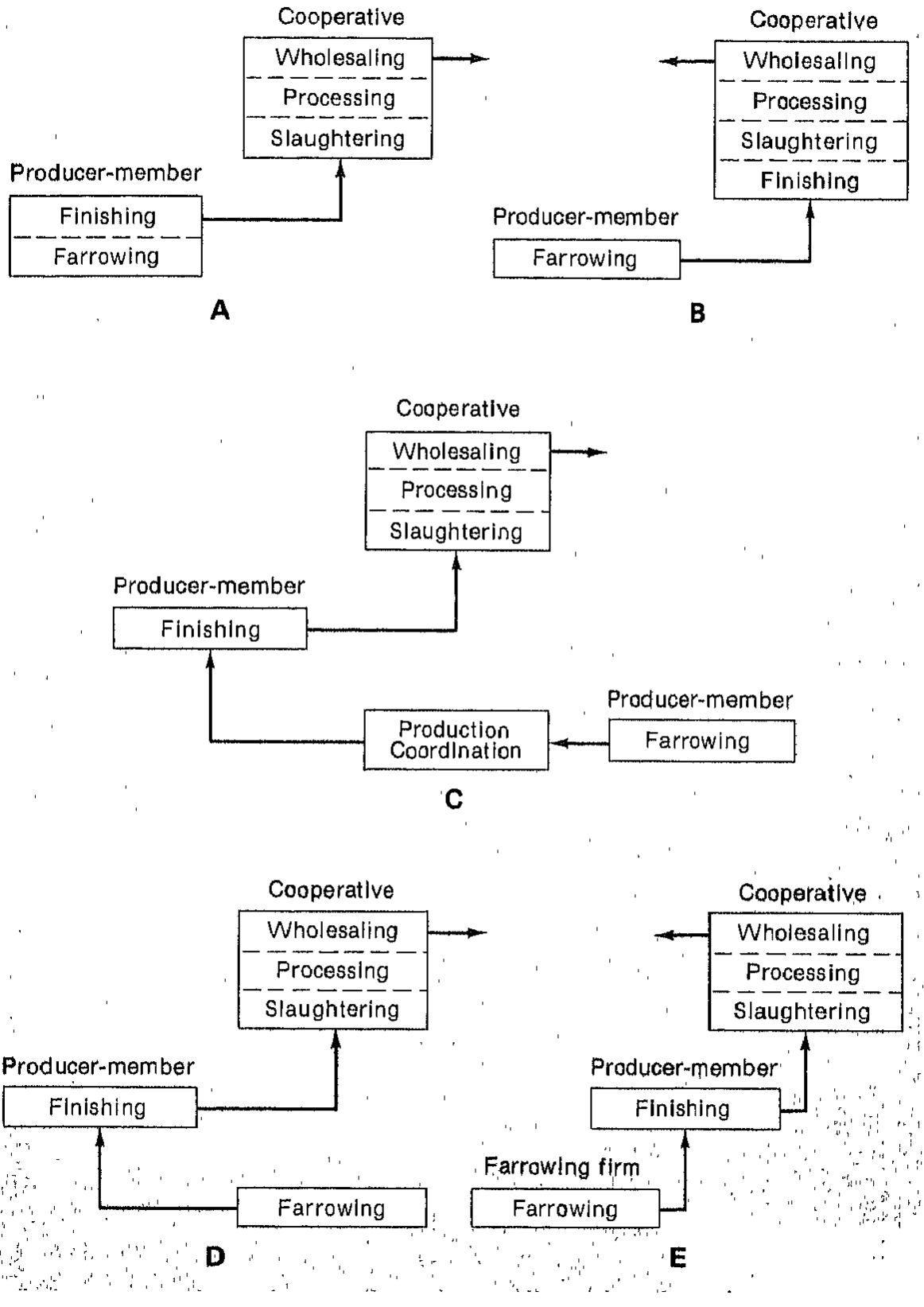
The cooperative would direct producers to provide the quality and weight of hogs that would maximize returns after taking into account feed conversion, lean-to-fat ratio, and total production and processing costs weighed against returns in the wholesale market. It also would schedule the movement of hogs into a slaughtering plant to keep the plant and labor operating at a planned level of capacity for maximizing returns to members. Seasonal changes in demand may indicate the need to vary production and slaughter throughout the year. In addition, the cooperative must be sensitive to cyclical and other changes in market conditions and direct production and processing to take advantage of them.

As in the cattle-beef system, the cooperative may provide for the slaughtering, processing, and wholesaling functions through custom arrangements, leasing, or ownership of facilities.

Several modifications could be made in this system to separate pig production from finishing in response to the trend for producers to specialize in one or the other. In regions where there are many feeder pig producers, members could raise pigs under contract and deliver them to the cooperative for finishing in a cooperative feedlot or on a custom basis with other feeders. The cooperative could then slaughter the hogs and process and wholesale the meat products (fig. 3B). In regions where a number of producers finish pigs farrowed by others, the cooperative could coordinate the production of pigs on farms of some members and finishing on farms of other members (fig. 3C). The method of distributing returns to participants in the total production-distribution system would be decided by an elected board of directors.

Another system is where the cooperative assumes full responsibility for pig production. The cooperative could produce pigs through a custom contract with nonmember-producers or in facilities owned and operated by the cooperative. The pigs would be deliv-

Figure 3--Coordinated cooperative systems for hog-pork production



ered to member-feeders for finishing and returned to the cooperative for slaughtering and succeeding functions (fig. 3D).

Finally, a number of farrowing firms could be organized to produce feeder pigs. Small groups of 10 to 30 producers could each form a farrowing firm to provide them with quality pigs at cost on a regular basis (fig. 3E). The central coordinating cooperative could help producers organize the firms and provide a complete turnkey service—planning, buildings, and gilts and boars. The cooperative also could train managers or provide a complete management service. One of the key problems with off-farm farrowing firms has been finding and keeping competent managers.

By organizing a series of farrowing firms, the cooperative would have considerable control over pig production without the capital required to produce pigs in its own facilities. The production could also be geographically dispersed for disease control purposes.

A coordinated cooperative must have control over the quality, quantity, and timing of feeder pig production to coordinate it with finishing capacity and the demands of processors or its own slaughter plant needs. For example, some processors have found it advantageous to buy and pay a premium for 250 to 270-pound, U.S. No. 1 hogs.[27] In normal market channels these heavy hogs are automatically discounted and innovative producers with this type of hogs are unjustly penalized. A completely coordinated cooperative system should be able to respond to these conditions and bring benefits to producers. The opportunity with heavy, meat-type hogs is probably only one of several innovations that could be made.

A cooperative might coordinate its system through the slaughter hog production stage and merchandise its ability to supply a large portion of a packer's needs with quality hogs on a timely basis. Or hogs might be sold through a centralized electronic exchange for immediate or future delivery. The cooperative also might coordinate its system through the slaughtering stage and sell hog carcasses, *but slaughtering and processing should be considered together* because processing is profitable and brings the cooperative closer to the consumer. By the time pork reaches the wholesale products level it is close to the form in which consumers buy it. This closeness may be necessary to get appropriate signals for directing future production.

The cooperative could provide financing to its members by purchasing pigs and feed and placing them on producers' farms, charging their cost to the member's account to be repaid when hogs are sold. If the cooperative operated a packing plant, it could buy the hogs when they arrived at the plant.[28]

Sheep-Lamb System

A complete cooperatively-coordinated system very similar to that for hogs could be designed for lambs even though there are some differences between the two production systems. The major differences are the greater seasonality of lamb production and the lack of specialization in the production of feeder lambs. About half the lambs are finished by the time they are weaned. The other half needs to be placed on feed for one or more months. Hence, there is not as much specialization as on hog and cattle farms. Many farmers and ranchers produce both finished lambs and feeder lambs even though some feedlots specialize in lamb feeding.

Cooperatives need to redesign the production, processing, and distribution system

[27]"Packer Offers Bonus for Heavy Meaty Hogs" *National Hog Farmer* August, 1975, pp. 8-11.

[28]For more detailed discussion of coordinated systems for swine producers see David L. Holder and Ralph E. Hepp, Cooperative Strategies for the Pork Industry, Mareting Research Report, ESCS, USDA, 1978.

for sheep and lambs to provide more coordination and more efficiency. In addition, cooperatives need to consider the feasibility of implementing more year-round lambing and increasing lambs produced per ewe.[29]

Engage In Slaughtering, Processing, and Distribution

Another alternative producers might pursue to enhance their position in the red meats industry is to enter the existing system at the slaughter-processing-distribution stage.

In Scandinavian countries, producer cooperatives slaughter 75-90 percent of all livestock. U.S. livestock producers, although they've operated cooperative meatpacking plants for many years, aren't a major factor in the U.S. packing industry.

In recent years, however, regional cooperatives have expanded significantly into meatpacking. Further, inquiries coming to ESCS from other cooperatives and groups of producers concerning meatpacking are increasing. Because of this growing interest and the substantial requirements to successfully participate in this industry, we've given considerably more attention to the meatpacking alternative.

This alternative offers producers several potential benefits. Cooperative operation of meatpacking plants could guarantee producers access to a market for their slaughter livestock, at least for those producers in the plants' normal supply area. They would not only have access to a live market, but through the cooperative would have access to the wholesale meat market. This is a totally different market for producers, one they cannot tap as merely producers of live animals.

In the future, producers of some kinds of livestock, such as lambs, may find this is the only alternative they can pursue to provide themselves a market for their production. The number of lamb slaughtering plants is declining rapidly and producers in many areas now have little or no access to a market for their lambs. As this decline continues the industry may reach a point where there are few, if any, plants slaughtering lambs, and producers will be forced to enter slaughtering to maintain a market for their production. They also would have to take on the concurrent responsibility of maintaining consumer demand for lamb.

Engaging in cooperative meatpacking allows producers to maintain control and joint ownership of their product further in the marketing channel. By keeping ownership of their product to the wholesale level they can capture any profits arising from the performance of the slaughtering, processing, and wholesale distribution functions. They can develop consumer demand for their branded products and reap the economic benefits of product differentiation. This is not possible as long as producers are only selling a commodity, such as live hogs, cattle, or lambs.

Assuming the present meatpacking industry is not fully competitive in its procurement, additional cooperative meatpacking activity would inject more competition into the market for live animals. This would benefit not only cooperative members but other producers as well. By being in the business the cooperative could provide a yardstick for producers to use in measuring the performance of the rest of the industry.

Meatpacking cooperatives could potentially be of great benefit by increasing the flow of information back to producers as an aid to making production adjustments. Pro-

[29]For more information on cooperative opportunities see David L. Holder, Cooperative Marketing Alternatives for Sheep and Lamb Producers, Marketing Research Report 1081, FCS, USDA, August 1977.

ducers need to know the quality and quantity of carcass meat their animals are producing and how they measure up to a 'standard' or "desired" animal. They need guidance on the numbers and weights of animals that should be produced under various market conditions. Meatpacking cooperatives are in a unique position to provide this needed information since their primary purpose is serving producer-members' best interests.

The opportunities, problems, and requirements for achieving a cooperative role in slaughtering, processing, and distribution are much the same as those associated with such enterprises when operated by proprietary firms. A cooperative plant should be located in an area of dense livestock production that will provide a good source of supply. It must have modern facilities that are capable of slaughtering and producing meat products efficiently and of a size that will achieve most scale economies. It should process as well as slaughter. It must have top-notch management that is knowledgeable in all areas of the meat industry. It must be well financed and have the staying power to weather periods of low net margins or losses characteristic of the industry, particularly if it is buying from members rather than using pooling. Finally, it must be able to gain access to good wholesale markets and have a marketing strategy that will maintain and expand these markets.

Plant Location

Several factors must be considered in selecting a general location for a slaughter plant. Probably the most important factor influencing plant location in recent years has been concentration of production. Indications are that to minimize livestock procurement costs a plant should be located in a production area that would permit the acquisition of most livestock supplies within a radius of 150-175 miles. Procurement costs rise rapidly at greater distances.

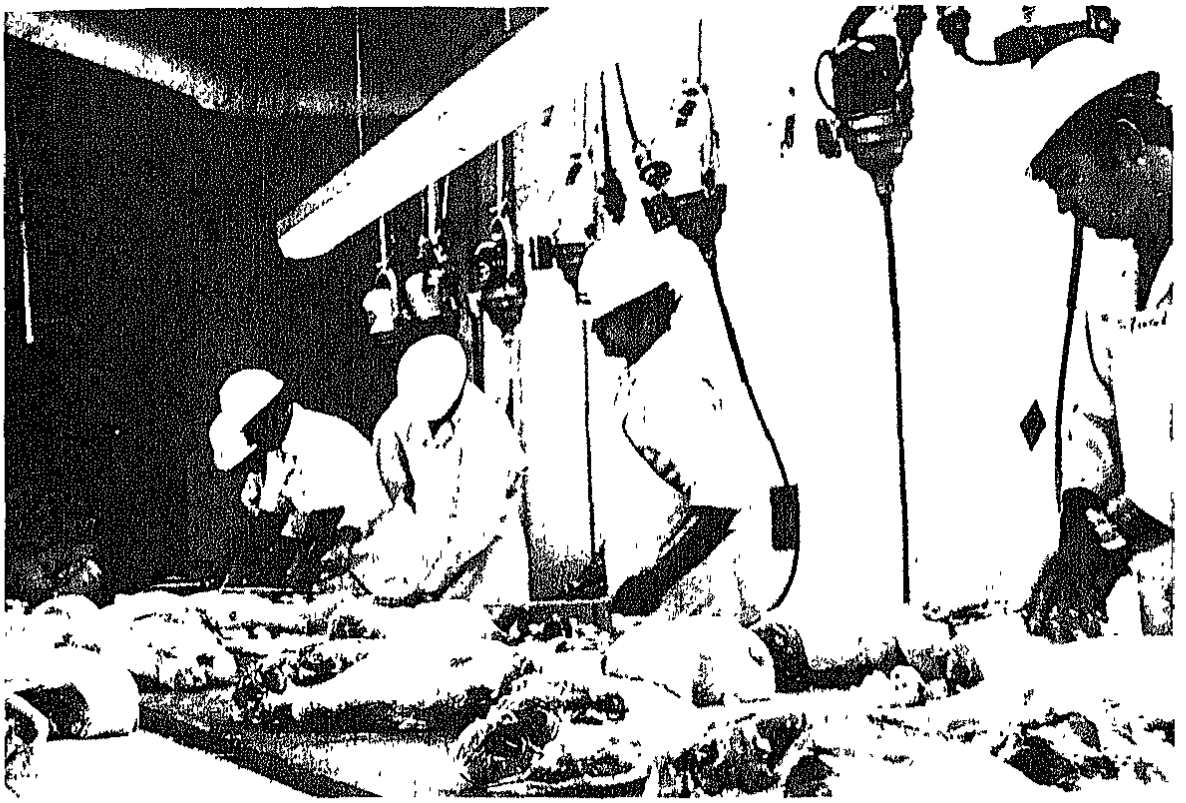
In the future, however, greater consideration in plant location must be given to the availability and cost of alternative energy sources to operate the plant, environmental factors, and transportation costs for inbound livestock and outbound meat products. It is conceivable that these considerations may outweigh the advantages of concentrated production in locating slaughter plants in the future.

Finding sufficiently concentrated production areas is a particularly difficult problem when an optimum size plant is involved because of the large volume of livestock required to keep the plant operating at, or near, capacity. Additionally, existing slaughterers are already purchasing livestock in the heavy production areas. Thus a cooperative would have to compete with these firms for existing livestock supplies unless its producer-members were willing to commit their animals to the cooperative.

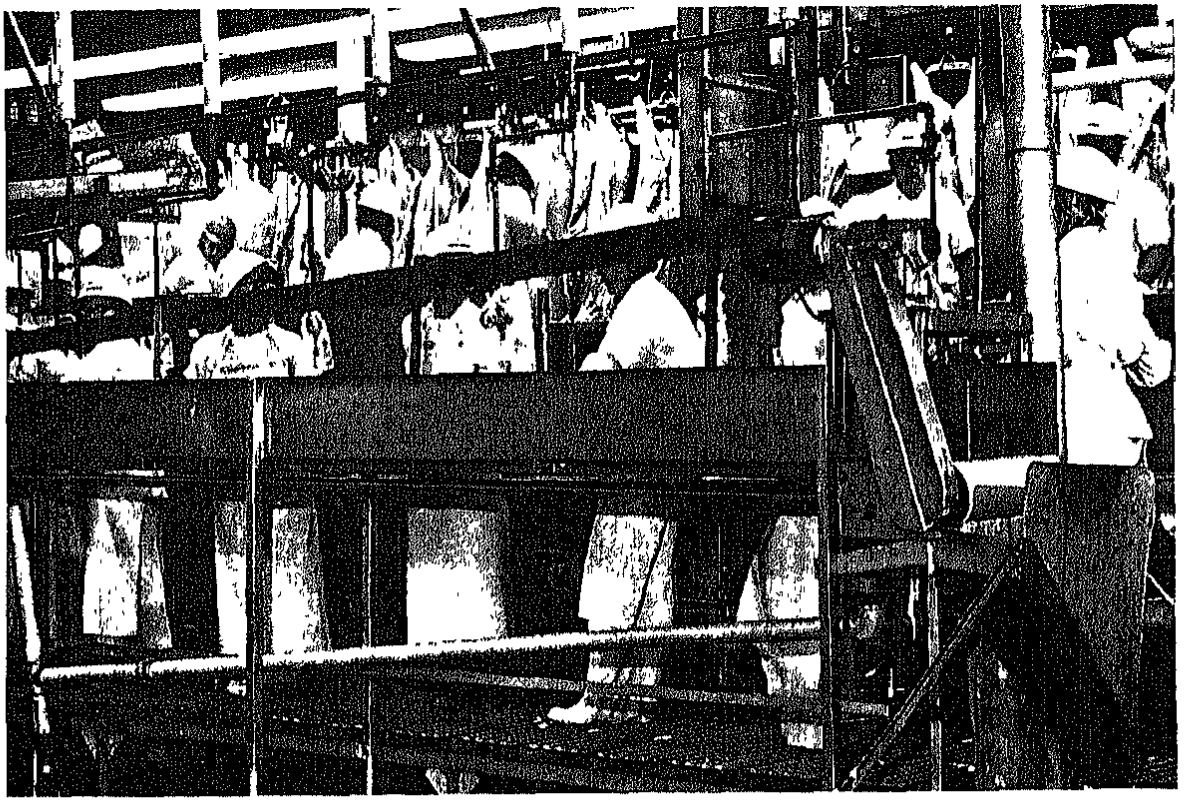
Producer Commitment

Producer-member commitment of livestock to a cooperative meatpacking plant through a marketing agreement would be of utmost importance for the cooperative to operate most efficiently and effectively. Such commitment could reduce the cooperative's procurement costs and permit the scheduling of deliveries to minimize plant operating costs. At the same time, producers would be assured a market for their livestock. The net result should be additional returns for producer-members that are unattainable by meatpacking firms procuring livestock on the open market.

The producer-cooperative agreement would put the cooperative in a position to coordinate the flow of livestock into its facilities with projected supply and demand conditions and maximize returns to producer-members from the entire system. Supply would



Sleughtering end procaaaing ahould ba coneidered together becauee processing is profiteble and allows producare to develop conaumar demand for lheir brandad producte.



To be compatitive a cooperative must heve modern facilities thet will eneble efficient production of high quality meet producte.

include all the costs of producing meat: livestock production, slaughtering, processing, and wholesaling. It would take seasonal cost factors into account and consider production and processing operations at different levels of capacity utilization. Demand would include returns from sales of meat and byproducts seasonally and at varying levels of output. In balancing supply with demand seasonally, the most profitable solution may not be to produce a fixed number of head every month.

Conversely, there is the viewpoint that member-commitment of supply—particularly a full supply commitment—would reduce a meatpacking cooperative's operating flexibility and severely hamper its ability to compete with proprietary firms in the industry. Even if the cooperative had member commitment, it should be limited to about 75 percent of plant capacity to permit short-run flexibility in adjusting volume by making variable purchases on the open market. Proprietary processors attempt to buy livestock wherever they are cheapest. There also are times in the livestock-meat price cycle when packing firms are better off by limiting their slaughter rather than trying to operate at or near capacity.

Management of meatpacking cooperatives that operate as separate profit centers no doubt feel compelled to conduct their operations similar to proprietary firms so the cooperative will operate profitably. However, this method of operation may not be in the best overall interest of producer-members who have previously committed their resources to producing livestock that must be sold regardless of market conditions that may develop and make processing itself unprofitable. The producers might be better off with some loss in processing to avoid a larger loss in production. A plan of coordination could be developed to handle both predictable and unforseen conditions requiring variation in processing volume.

The need for the cooperative to operate as a separate profit center could be overcome by pooling producer returns on the basis of the value of meat and by products sold, less processing and selling costs. The cooperative management then would not need to be concerned with buying cheap and selling high to obtain a sufficient margin to cover operating costs. Management's concern would be to sell meat products at the highest price possible and operate the processing plant as efficiently as possible. Pooling would require producers to directly assume the risk of price changes in the wholesale meat market. However, as owners of a meatpacking cooperative, they must eventually assume this risk anyway.

Plant and Firm Size

To be competitive in the industry a cooperative must have technologically modern plant facilities that will permit efficient slaughter and processing and the production of high quality meat products. The plant should also be large enough to achieve significant scale economies. It is generally accepted in the industry that to achieve these operating economies plants should have the capacity to slaughter 1 million hogs or 250-375,000 cattle a year. Some industry people have indicated that the optimum standard of efficiency for a beef plant is 400,000 cattle a year. However, except in the most concentrated fed cattle production areas, plants with capacities of more than 375,000 head begin to experience diseconomies due to rising procurement costs.

Another aspect of size to be considered is the cooperative's ability to service the needs of today's meat buyers. Buyers for the large national firms that handle most of the meat sold at retail look for meat suppliers that can furnish a large quantity of uniform quality meat on a regular basis. To successfully penetrate this market a cooperative probably would need to have annual sales approaching $250 million, especially in beef.

This volume of sales translates into approximately 510,000 cattle or 1.7 million hogs slaughtered and processed a year at current price levels.

The national retail chain market, of course, is not the only market meatpacking cooperatives could serve. There are local markets in various areas of the country that are dominated by local or regional retail chains as opposed to national chains. These buyers, as well as the food service trade and cooperative chains, could be adequately served by a cooperative with a smaller sales volume. In addition, there are small independent retail stores, but this market is much more costly to serve and handles only a small proportion of total retail meat sales.

Projected Capital Requirements

Financial data from 17 meat processing firms for fiscal years ending during the period 1971-76 provided 44 usable firm-year observations. The firms are classified into six broad asset-size groups. The average balance sheet configuration for each asset-size group provides a basis for establishing broad generalizations about term debt, net worth, and fixed asset requirements of firms within each group. In addition, some generalized idea of total net sales for each group can be generated (table 5).

The guidelines developed from this analysis are illustrated in the following examples. If an efficient size beef plant handles 250,000 head of cattle a year with projected total sales of $122.5 million, the related total asset "package" could be projected at $15.8 million based on $7.75 of sales per $1 of total assets. Assume lending institutions would provide 50 percent, or $7.9 million of the initial capital in the form of term debt, and 10 percent, or $1.58 million, would be provided by trade creditors and other deferred liabilities. Then producers would be faced with the prospect of raising 40 percent, or $6.33 million, of equity capital. If the processing cooperative were to rely on member producers as the sole source of its livestock supplies, an estimated membership of a least 2,381 producers would be required to supply the projected volume based on an annual average throughput of 105 cattle per member.[30] If initial equity capital contributions were proportional to members' projected cattle slaughter, the average capital requirement per member would amount to $2,650, ranging from $226 for the average small volume producer to $87,750 for the average high volume producer (table 6).

Table 5—Typical financial ratios for 17 meat processing firms, by total assets, fiscal years ending during 1971-76

Approximate total assets	Percent of total assets represented by—			Sales per $1 of total assets
	Fixed assets	Term debt	Net worth	
Million dollars		Percent		Dollars
2	60	15	40	4.25
30	40	20	50	7.75
60	30	30	30	7.75
80	35	25	40	3.00
180	40	30	30	7.75
850	25	25	50	4.00

Source: Securities and Exchange Commission, 10-K reports.

[30]Based on 1969 Census of Agriculture data on size distribution of farms selling cattle fattened on grain and concentrates, p. 53, Volume II, Chapter 5.

Table 6—Projected membership and per member equity capital requirements for an optimum beef plant based on North Central States distribution of fed cattle sold in 1969

Fed cattle sold per farm	Farms reporting[1]		Fed cattle sold[1]		Co-op members	Cattle sold	Equity required	
							Total[2]	Per member
	Number	Percent	Number	Percent	Number		Dollars	
1-19	48,570	41	416,229	3.4	976	8,500	221,000	226
20-49	27,689	23	864,588	6.9	548	17,250	448,500	818
50-99	16,828	14	1,167,326	9 4	333	23,500	611,000	1,835
100-199	12,431	11	1,707,176	13.7	262	34,250	890,500	3,399
200-499	9,339	8	2,768,127	22.2	190	55,500	1,443,000	7,595
500-999	2,260	2	1,498,585	12 0	48	30,000	780,000	16,250
1,000 and over	1,136	1	4,044,273	32 4	24	81,000	2,106,000	87,750
Total	118,253	100	12,466,304	100.0	2,381	250,000	6,500,000	2,730

[1]Based on 1969 Census of Agriculture data on cattle sold fattened on grain and concentrates, vol. II, ch 5, p 53.
[2]Based on equity of $26 a head slaughtered.

If net operating savings would be at least equivalent to the industry's performance, that is, 1 percent of net sales after taxes, the beef plant's operations would result in $1.225 million of net savings. This would represent a 19-percent return on equity capital and an 8-percent return on total assets.

An efficient size pork plant handling 1 million head a year would have total annual net sales estimated at $149.5 million. The related total asset package would be projected at $19.3 million based on $7.75 of sales per $1 of total assets. As in the beef plant example, assume a lending institution would provide 50 percent, or $9.65 million, of the initial capital in the form of term debt, and 10 percent, or $1.93 million, would be provided by trade creditors and other deferred liabilities. Producers would be expected to provide 40 percent, or $7.72 million, as an initial out-of-pocket investment.

If annual throughput would be equivalent to an average of 187 hogs per member, an active membership of at least 5,348 hog producers would be required to supply the projected volume.[31] Thus the average initial investment would amount to $1,444 per member, or $7.72 per hog processed through the plant (table 7). The average investment per

Table 7—Projected membership and per member equity capital requirements for an optimum pork plant based on North Central States distribution of hogs sold in 1969

Hogs sold per farm	Farms reporting[1]		Hogs sold[1]		Co-op members	Hogs sold	Equity required	
							Total[2]	Per member
	Number	Percent	Number	Percent	Number		Dollars	
1-49	91,076	25	2,270,783	3.2	1,337	32,000	247,040	185
50-99	76,337	20	5,465,585	7.8	1,070	78,000	602,160	563
100-199	89,377	24	12,520,901	17.9	1,283	179,000	1,381,880	1,077
200-499	88,461	24	26,484,629	37.9	1,283	379,000	2,925,880	2,280
500-999	22,558	6	14,776,362	21.2	321	212,000	1,636,640	5,099
1,000 and over	5,475	1	8,345,060	12.0	54	120,000	926,400	17,156
Total	373,284	100	69,863,320	100 0	5,348	1,000,000	7,720,000	1,444

[1]Based on 1969 Census of Agriculture data on hogs and pigs sold, vol. II, ch 5.
[2]Based on equity of $7.72 a head slaughtered.

[31]Based on 1969 Census of Agriculture data on size distribution of farms selling hogs and pigs, Volume II, Chapter 5.

member would range from $185 for the producer selling 1 to 49 hogs annually to $17,156 for the producer marketing over 1,000 hogs annually. Assuming net operating savings would be at least equivalent to the industry's performance, that is, 1 percent of net sales after taxes, the pork plant's operations would result in $1.495 million of net savings. This would represent a 19-percent return on equity capital and an 8-percent return on total assets.

The projected capital requirements presented here assume the cooperative would operate in the traditional way by purchasing livestock from members and paying them the full market price at time of delivery. If the cooperative used pooling, as discussed earlier, its capital requirements would be substantially reduced due to lower operating capital needs for financing inventory. However, the burden of financing inventory would be shifted directly to producer-members.

The projected returns for efficient size plants may tend toward the conservative side compared to the American Meat Institute's (AMI) performance data for the "regional" packer group whose sales volume falls within the range of the assumed plants (table 3). Regional packers had 5-year average returns of 11.6 percent on total assets and 22 percent on net worth, compared to 8 and 19 percent, respectively, estimated for the assumed plants. We also were conservative in projecting earnings performance of the assumed plants at 1 percent of sales as compared to the AMI's estimate of before-tax earnings of 1.7 percent for regional packers and 1.9 percent for all packers.

Obviously, a budgeted approach on specifically engineered projects would provide more precise numbers for both producers and lending institutions to ascertain their respective commitments. Nevertheless, the foregoing summaries fairly represent the basic financial configuration of the meatpacking industry and provide some "ball park" idea of the investment costs of entry into the industry.

An earlier section of this report provides estimates of average investments of livestock producers in the net worth of different types of livestock marketing associations. For example, average net worth amounted to $39 per member in regional livestock marketing cooperatives, $20 per member in local (primarily shipping) associations, and $1,400 in cooperative meatpacking associations. Our estimates were $2,730 per beef producer and $1,444 per pork producer member for the average initial investment in the equity capital of an efficient size cooperative meatpacking plant. These figures represent an investment level which should not be any more difficult for a cattle or pork producer to come up with than a grain producer considering an investment in a cooperative elevator. However, the $88,000 investment required for the large cattle producer or the $17,000 investment for the large hog producer may present some barrier to producer financing.

Method of Entry

Livestock producers considering entry into the meatpacking industry have several decisions to make regarding the method of entry. First, they must decide if they are going to organize their own local cooperative to operate a meatpacking plant or have their regional cooperative, or cooperatives, initiate meatpacking operations. Second, they must decide if they will enter as a "new firm" in the industry or by acquiring an existing meatpacking firm. And third, if they will enter as a new firm, will they build a new plant or buy an existing plant? Most of these approaches to entry have been used by livestock producers and their cooperatives at one time or another. They all have advantages and disadvantages that deserve further discussion.

Organizing a local cooperative to engage in meatpacking probably would generate

the most producer interest in the venture and provide for the highest degree of producer control. This option may, however, have the problem of restricted capital availability that could prohibit entry or affect the long run viability of a cooperative meatpacking venture. It probably has the least likelihood of success in the industry of the future.

The preceding section of this report indicates that entry into meatpacking requires substantial capital resources to acquire plant and equipment and finance normal operating costs. Also, meatpacking firms normally have low net margins or operating losses during certain periods of the livestock-meat price cycle. Therefore, cooperatives need not only substantial initial capital to enter meatpacking, but they need the resources necessary to ensure financial staying power. It is doubtful that most local producer groups could raise the equity and debt capital required to provide a sound financial base for an economic size meatpacking venture.

Many large regional cooperatives have access to the capital required to enter meatpacking, particularly the large farm supply-marketing cooperatives. While regional livestock marketing cooperatives are not as financially well endowed, several of them might jointly enter meatpacking.[32] Regional cooperatives also have access to adequate financial resources to see them through adverse periods.

Livestock producers may not take as much interest in a regional cooperative meatpacking operation and their control may be more diluted than in a local cooperative. But the regional cooperatives' financial staying power, their management expertise, and their broad-based producer membership suggest that they offer livestock producers a viable option to enter meatpacking successfully.

Regardless of which of these options is chosen to enter meatpacking—local or regional cooperative—two basic decisions remain. These are: (1) whether to enter the industry as a brand new firm or to buy an existing firm, and (2) whether to build a new plant or buy an existing plant when the "new firm" option is selected.

Entering meatpacking as a new firm would require a cooperative to hire an experienced management team and develop new markets for its products. A management team can be put together from experienced personnel in the industry. But such a team would have no record of performance and it might take considerable time and several personnel changes to get a team that could function together smoothly and effectively. It might be possible, as at least one producer-owned meatpacking organization has done, to contract with a successful meatpacking firm to manage the plant until a good cooperative management team could be developed.

Developing product markets is a lengthy and costly process, particularly if branded processed products are sold. Large expenditures are required for advertising and promotion to establish a brand name. Even if only unbranded products are sold, the cooperative would have to establish market outlets. Developing markets for both types of products is a difficult process of taking sales away from established packers. While this is possible, the cooperative probably could not tap the most profitable markets for some time after entering the industry as a new firm. The early period of operations during which the cooperative would be attempting to both put together a good management team and develop product markets could very well be an unprofitable one.

Buying an existing successful meatpacking firm could obviate many of the problems of entry as a new firm. The cooperative could acquire a going business with established brands and sales outlets that could give it immediate market access. The firm's experi-

[32]Legal restrictions presently exist on livestock marketing cooperatives engaging in meatpacking as discussed in an earlier section of this report.

enced management team with a record of performance also could be retained. If the firm being acquired has a history of profitable operations, there would be reason to expect that the cooperative could continue to run the business profitably without suffering an initial loss period that can be expected when entering as a new firm.

Acquisition of an existing firm does have pitfalls, however, and a cooperative needs to use caution when considering this method of entry. It needs to establish minimum criteria for use in evaluating firms for potential acquisition. These criteria might include the following:

1. A well located plant, or plants, relative to producer-members.
2. Modern and efficient plant and equipment with no major environmental problems and a dependable source of energy.
3. A financially sound firm having a history of profitable operations, with rates of return equal to or above industry averages.
4. An experienced management team that could be retained by the cooperative.
5. Existence of established brands and market outlets. The brands should be accepted in the market the cooperative intends to serve.
6. Diversification of sales with no major dependence on any single customer. A good guideline might be a maximum of about 5 percent of sales to any single customer.
7. A record of growth in business volume.
8. A large enough business volume to effectively compete in the industry.
9. Process as well as slaughter and a strong position in the processed product market.

If most of these criteria could be satisfied, cooperative acquisition of an existing firm probably is to be preferred to cooperative entry as a new firm.

If a cooperative enters meatpacking as a new firm, it faces the alternatives of building a new plant or buying an existing one. A new plant can be built with the most advanced slaughter and processing technology available and with the capacity that will best meet the cooperative's needs. Further, it can be located where it will best serve member-producers. But building a new plant is costly and requires a considerable period of time. If a cooperative's time frame for entry is short, building a new plant may not be its best alternative. On the other hand, finding the right existing plant to buy also can be a time-consuming process.

Caution is the watchword for buying an existing plant. Existing plants that are offered for sale often are fraught with problems such as obsolete building and equipment, inefficient plant layout, or serious environmental deficiencies. They also may be poorly located with respect to livestock supply and, more particularly, to a cooperative's producer-members. Further, they may not have the facilities and equipment to perform the slaughter-processing functions the cooperative wants to perform.

Some of these problems might be overcome through a plant modernization or expansion program, although this can be extremely costly. Even plant modernization may not rectify some problems. In these instances an existing plant is seldom a good buy no matter what the selling price. A large investment is made and the cooperative still has an old, inefficient plant.

There are modern, efficient, well located plants offered for sale from time-to-time that may be a good buy for a cooperative. It sometimes happens that a firm has such a plant it must sell to improve its financial condition. A recent example is American Beef Packers, Inc., which went into bankruptcy and had to sell some of its plants. Under these circumstances a plant oftentimes can be purchased at a discount from its book value and can be obtained in a timely manner.

Another alternative would be for a cooperative to buy an existing firm solely for the purpose of acquiring established product markets and brands and, perhaps, an experienced management team. The cooperative could then build a modern plant to supply these markets efficiently and dispose of the acquired firm's facilities. This may be the least expensive way for a cooperative to establish a market for its meat products and at the same time have an efficient processing capability.

Enterprise Organization

Two aspects of the organization of cooperative meatpacking involve important considerations for producers and their cooperatives. One is the organization of the meatpacking enterprise when it is undertaken by a regional cooperative. The second is the organization of the cooperative sector of the meatpacking industry. Organization of the enterprise within a cooperative is discussed in this section. The next section discusses organization of the cooperative industry sector.

Regional cooperatives, like other business organizations, organize their activities to achieve specialized functional objectives, such as procurement, marketing, and manufacturing. Or they organize according to product line or commodity as a means of providing services for members most effectively. They may do this by organizing departments or divisions to perform specialized tasks to achieve major corporate objectives. Well-run departments make use of specialized personnel skills at the level where problems must be solved and initiatives taken. A regional's slaughtering and processing department would require such unique, specialized personnel, especially in its procurement, marketing, and distribution activities.

A slaughtering and processing department also would facilitate the concept of operating that activity as a "profit center." This, in turn, provides the basis for greater precision in making patronage refunds from earnings derived from the meatpacking activity. Offsetting one department's gains against another department's losses becomes an important issue that members must decide. This issue would be especially important where a livestock processing department might operate at a loss for several years until its procurement, processing, and marketing activities had gained the confidence of livestock producers as well as buyers.

Operation of departments also facilitates the budget process which has obvious implications for a cooperative's overall debt-equity relationships. Ideally, members should finance their cooperatives proportional to their use of its services. Profit center accounting, implying more precise allocation of costs and computation of patronage refunds on a departmental basis, is consistent with this patron financing objective. Basic to realistic budgeting is the validity of the assumptions used in projecting costs and returns. Livestock producers' commitment through some sort of contractual arrangement with the cooperative would set the stage for sound market planning by the cooperative and would provide a basis for influencing producers' production decisions to coincide more closely with market requirements. Another implication of the budgeting process under a departmental structure is the strengthening of internal control procedures through the reporting requirements—both to members at annual meetings and to higher levels of management through the internal line organization structure. Stated another way, organizing meatpacking on a division or departmental basis has great potential for encouraging accountability to livestock producer-members.

Cooperatives also form subsidiary corporations for several reasons, some of which coincide with the same reasons advanced for operating on a departmental basis. Gener-

ally, however, cooperatives form meatpacking subsidiaries to isolate certain activities away from the mainstream of the cooperatives' primary activities. For example, if such an undertaking is highly risky, the corporate shield of the subsidiary will help to limit the parent cooperative's liability, especially if the subsidiary's activities are unsuccessful. Or, a marketing cooperative may want to protect a long-established and accepted brand name by producing a cheaper, high volume processed product under another corporate name. It also is possible that a subsidiary's management, both hired and the elected directorate, could be chosen from the ranks of the parent cooperative's executive group, thus partially insulating the subsidiary from direct accountability to the cooperative's membership.

A subsidiary generally gets its financial support from the parent cooperative, not only through the latter's equity and debt contributions, but also through short term advances on an open account basis. A regional would be in a position to allocate substantial funds to a meatpacking subsidiary which, by virtue of the subsidiary's corporate shield, may be quite difficult to recover if its operations are unsuccessful. On the other hand, a subsidiary does have a corporate life of its own—albeit closely controlled by the parent—and, under some circumstances, may have access to a wider range of equity and debt capital than is available to the parent cooperative.

However, the key difference between performing a slaughtering and processing function within a cooperative's structure as a departmental activity or as an activity carried out by a subsidiary would appear to be the isolation of the activity away from the mainstream of the cooperative's primary activities. Whatever the reason, such isolation makes member control of the subsidiary more difficult. The contrast can be quite sharp compared to livestock producer-members' relationships to a division or department.

Cooperative Sector Organization

Producers may take several approaches to organizing the cooperative sector of the meatpacking industry. In one approach individual cooperatives would operate one or more packing plants independently of all other cooperative meatpackers. In another approach producers would organize a large centralized cooperative that would carry on all slaughtering, processing, and distribution functions on a multiregional or national scale, and in which they would have direct membership. A third approach would be for two or more regional cooperatives to form a federated interregional red meats cooperative to perform and/or coordinate the slaughtering, processing, and distribution functions on a multiregional or national scale. The regional cooperatives could be specialized meatpackers or farm supply-marketing cooperatives, and either type of cooperative may or may not already be engaged in meatpacking prior to forming the interregional cooperative.

Independent cooperatives—To date, the cooperative sector of the meatpacking industry has been organized as completely independent activities of several cooperatives. Each cooperative has independently decided when, where, and at what levels to get into meat processing. Each has independently developed, advertised, and promoted its own brand name products, developed its own markets, and conducted new product research.

Independent cooperative activities have some benefits as opposed to joint cooperative activities. The independent cooperative can conduct its operations with the sole purpose of benefitting its own producer-members and without regard to the effects on other cooperatives or other producers. There also is no cooperation required between cooperatives, something that may be difficult to achieve. However, if cooperative meatpacking expands in the future, livestock producers should consider the benefits of joint activities

by their cooperatives. While the independent activities may not have resulted in duplication of effort thus far, they probably have not provided producers the maximum benefits possible from their cooperative meatpacking ventures.

Interregional cooperative—Effective market penetration of the red meats industry by cooperatives will require massive sums of capital and a nationwide distribution system. The magnitude of investment needed, and the vital need for skilled management and proven distribution systems, quickly focuses attention on the need to organize and coordinate cooperative meatpacking activities on a multiregional or national scale. Few cooperatives individually have the financial resources to purchase or build the facilities and systems necessary to enable producers to control a sizable market share in red meats.

Cooperatives have had notable success in using the interregional approach in such fields as the production of petroleum, fertilizer, and other farm supplies; transportation; and commodity marketing. Meatpacking cooperatives in Norway, Sweden, and Denmark have used the interregional structure successfully for several years.

The interregional structure has permitted regional cooperatives to generate the financial resources necessary to operate efficient plants, hire skilled management, capture transportation economies, develop new domestic and international markets, generate the volume of raw product needed for efficient, large-scale processing, and spread the risk of large, capital-intensive ventures. Successful regionals, by combining their financial resources, providing good leadership, and employing skilled management in their interregional cooperatives, have contributed to member cooperative returns throughout the Nation.

The use of the interregional approach in organizing the cooperative sector of the red meats industry offers many potential benefits. Many of the advantages center around economies of scale in production, processing, merchandising and distribution, and financing. The interregional structure would enable regional member-cooperatives to:

1. Marshal the risk capital necessary to engage in slaughtering and processing operations at a scale that would insure a reasonable market share, provide for efficient operations, and attract or hold the highest skilled management available.
2. Combine adequate risk capital from several regionals, thereby minimizing the risk to any single group or organization and ensuring financial staying power to withstand competitive challenges and livestock-meat price cycles.
3. Accelerate establishment of markets for producer-members' meat products in all major consuming centers and effectively compete with major industry firms. It would permit cooperatives to penetrate the high density east and west coast consumer markets.
4. Provide slaughter facilities and services to producer-members over a wider geographic area and in desirable locations.
5. Develop and promote cooperative product brands and logos that are accepted by consumers regionally or nationwide and preclude duplication of advertising and promotion efforts.
6. Eliminate competition among cooperatives, that is, between groups of livestock producers. Expanded independent cooperative activity could increase competition among cooperatives which, in effect, would pit one group of producers against another.
7. Develop a complete product line to better serve the needs of retailers and increase the demand for members' products.
8. Establish an efficient sales and physical distribution system through centralized sales and distribution management and joint use of transportation, warehouse, and other facilities.

9. Develop and operate a centralized quality control program to ensure the production and distribution of consistently high quality meat products.

10. Achieve a strong position in the red meats industry without making additional demands on regionals' existing management and staff.

11. Develop a centralized system for providing regionals with skilled management assistance in financing, leasing, industrial revenue bonding, design, and purchasing and provide management contracts and training for regionals.

12. Conduct a centralized program of research in all phases of the livestock-meat industry, including breeding, physical assembly and distribution of livestock and meat, new products and markets, slaughtering and processing technology, and meat products technology. This could be done with a smaller investment by each regional member than if each did it individually and the benefits to producers would be more widespread.

13. Secure a needed direct supply of livestock byproducts for animal feeds.

14. Provide member regionals and their producer-members with market and other information such as prices, grades, margins, demand, and wages, as well as other member and producer services.

An interregional red meats cooperative may limit the control of individual regional cooperatives over the meatpacking operations. However, the opportunities it provides for market entry and shared leadership and to leverage limited capital may far outweigh regionals' needs for more direct control.

Many types of interregional red meats cooperatives are feasible and can effectively serve cooperatives entering the industry, as well as established cooperatives currently marketing red meat. Several alternative types of interregionals are outlined in the following discussion. This is by no means a complete list, and each alternative discussed could be modified to fit the particular needs of regional members.

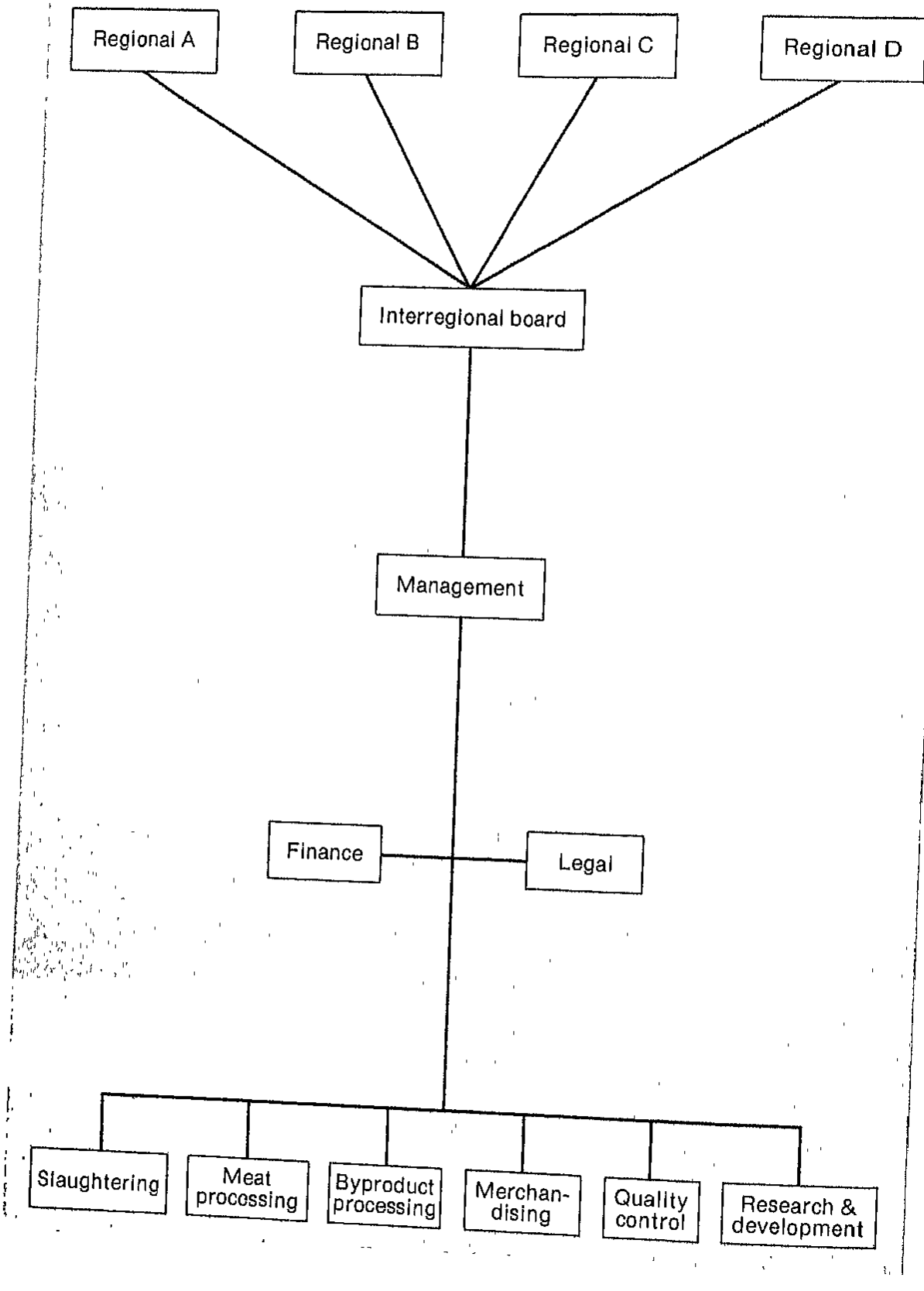
One alternative is for two or more regional cooperatives to organize a complete interregional red meats cooperative. This type of interregional operation would be most useful to regional organizations not currently in the red meats business, or those wishing to expand their red meats operations into new geographic markets or functions.

A complete interregional red meats cooperative would have the capability to perform slaughtering, processing, merchandising, and distribution functions. It might perform all functions for some regional members, but only certain functions, such as merchandising and distribution, for others. However, if the interregional performed only certain functions such as processing, merchandising, or distribution for some regional members, these regionals should be committed to supply the interregional with a specified volume and quality of raw or processed products. They should not be permitted to use the interregional merely as a dumping ground for surplus or inferior quality products.

Slaughter or processing facilities currently owned by regionals could be retained, sold to the interregional, or operated under a management contract by the interregional. Regionals with slaughtering or processing plants that wish to retain these facilities could utilize the interregional's skilled sales force to market their fresh and processed products. The interregional would be responsible for sales to national chains and to buyers in international markets. It also could coordinate distribution, transportation, and promotion and advertising of cooperative red meat products.

The organization and control of a complete interregional is illustrated in figure 4. Each regional's percentage of ownership could vary, depending on expected use of the interregional. Board representation and control would be based on ownership. Directors would be selected by regional members and could be livestock producers or members of

Figure 4--Complete interregional red meats cooperative



their management teams, or both. Livestock producer directors may be selected from the regionals' boards or their general producer membership. In addition, one or more producer advisory committees organized on a species basis might be used to give producers some input into the interregional board's policy decisions.

Returns from this type of interregional would consist of savings from operations and additional sales power for producers' animals slaughtered, processed, and marketed cooperatively. Net savings would be allocated to regional members based primarily on their use of the interregional, with consideration given to a return on their investment. Returns or losses could be segregated by division or function, or their source could at least be considered in determining total returns from the entire operation.

Purchasing a successful slaughtering and processing firm with a nationwide marketing and distribution system would permit entry and penetration of the current market structure. A skilled management team and successful sales staff could be acquired with the firm to minimize risk of entry. Control of existing publicly-owned firms could be achieved by purchasing a majority of the firm's outstanding common stock.

Experience by cooperatives in the red meats field indicates that some family-owned or controlled firms can be purchased on a gradual basis, with family interests taking payment over an extended period of years. This arrangement provides for an orderly transition and continuity in operations, and allows the cooperative to utilize investment capital for expansion or additional marketing activity.

A second alternative would be to form an interregional red meats processing and marketing cooperative on a multi-State or national basis. This interregional would perform more limited functions and serve regional members with slaughtering plants, or regionals contemplating building or purchasing slaughter facilities (fig. 5).

To date cooperative meatpacking activities have, for the most part, focused on slaughtering and basic processing, with processed products being distributed on a local or limited basis. During recent years, Farmland Foods has expanded its processing and is distributing processed products in selected markets from coast to coast. Economic feasibility studies strongly indicate that returns can be increased by further processing and packaging.

A successful processing and marketing cooperative could process members' meat and byproducts and market cooperative branded and unbranded products nationally. It also could provide international markets for byproducts, variety meats, and hides. Close coordination between the interregional's processing and distribution services and members' slaughtering facilities would be essential to maximize gains from the interregional. The interregional might contract with regional members for raw products and services from their slaughter plants.

In addition to the processing and marketing functions, the interregional might provide other services to the regional slaughtering cooperative members. These might include centralized purchasing of supplies and small equipment and provision of management services, such as management training and assistance in obtaining financing.

As a third alternative, regional cooperatives could form an interregional red meats marketing cooperative to sell products in both national and international markets (fig. 6). Regional slaughtering and processing cooperatives need improved nationwide access to major consumer markets. To insure adequate outlets for significant export products, including variety meats, lard, tallow and hides, an international market also is essential.

Regional cooperatives could become members and utilize either the national or international marketing services of the merchandising department, depending on need or products available for sale. In addition, the interregional could use its large volume buy-

Figure 5--Interregional red meats processing and marketing cooperative

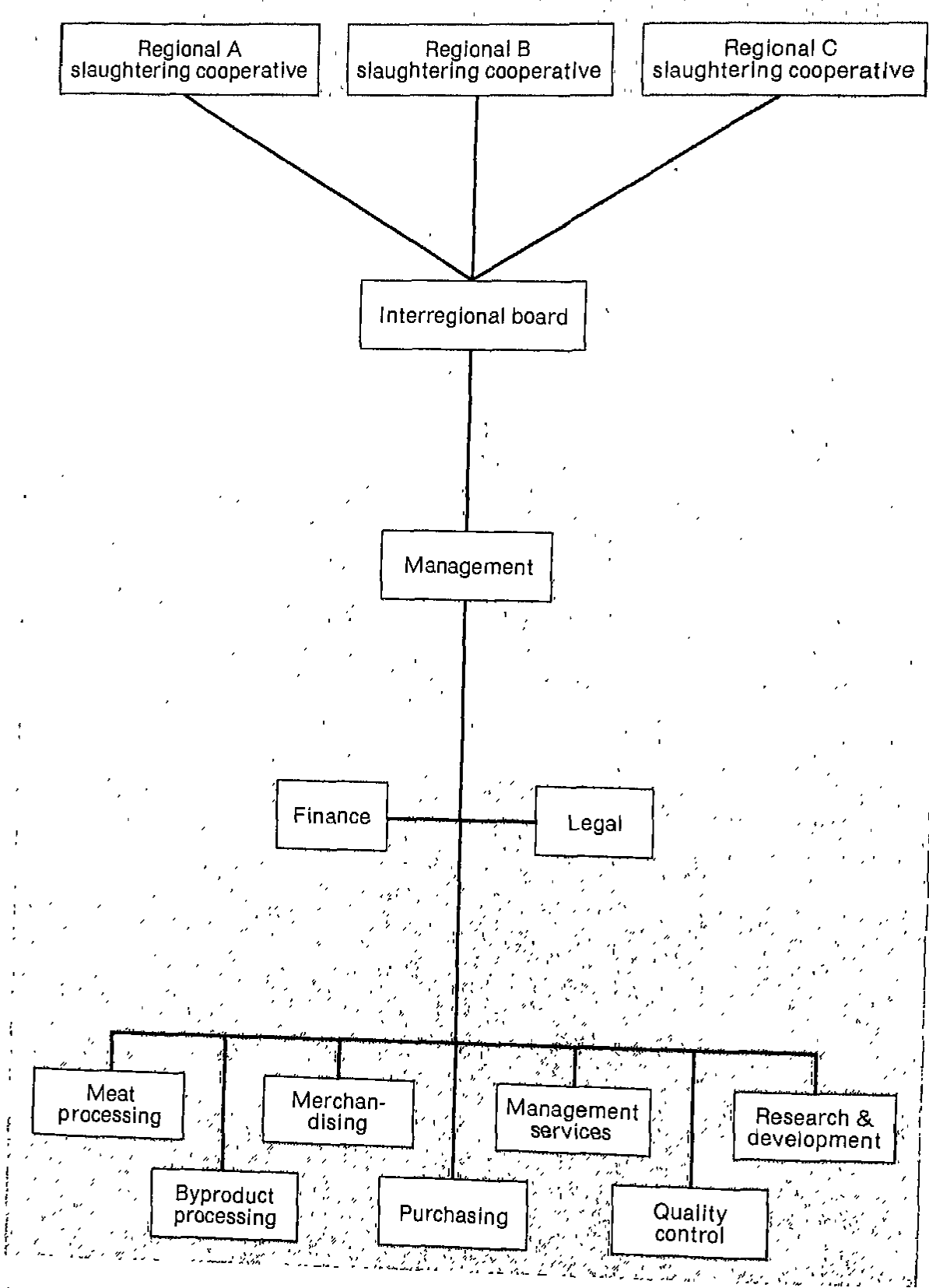
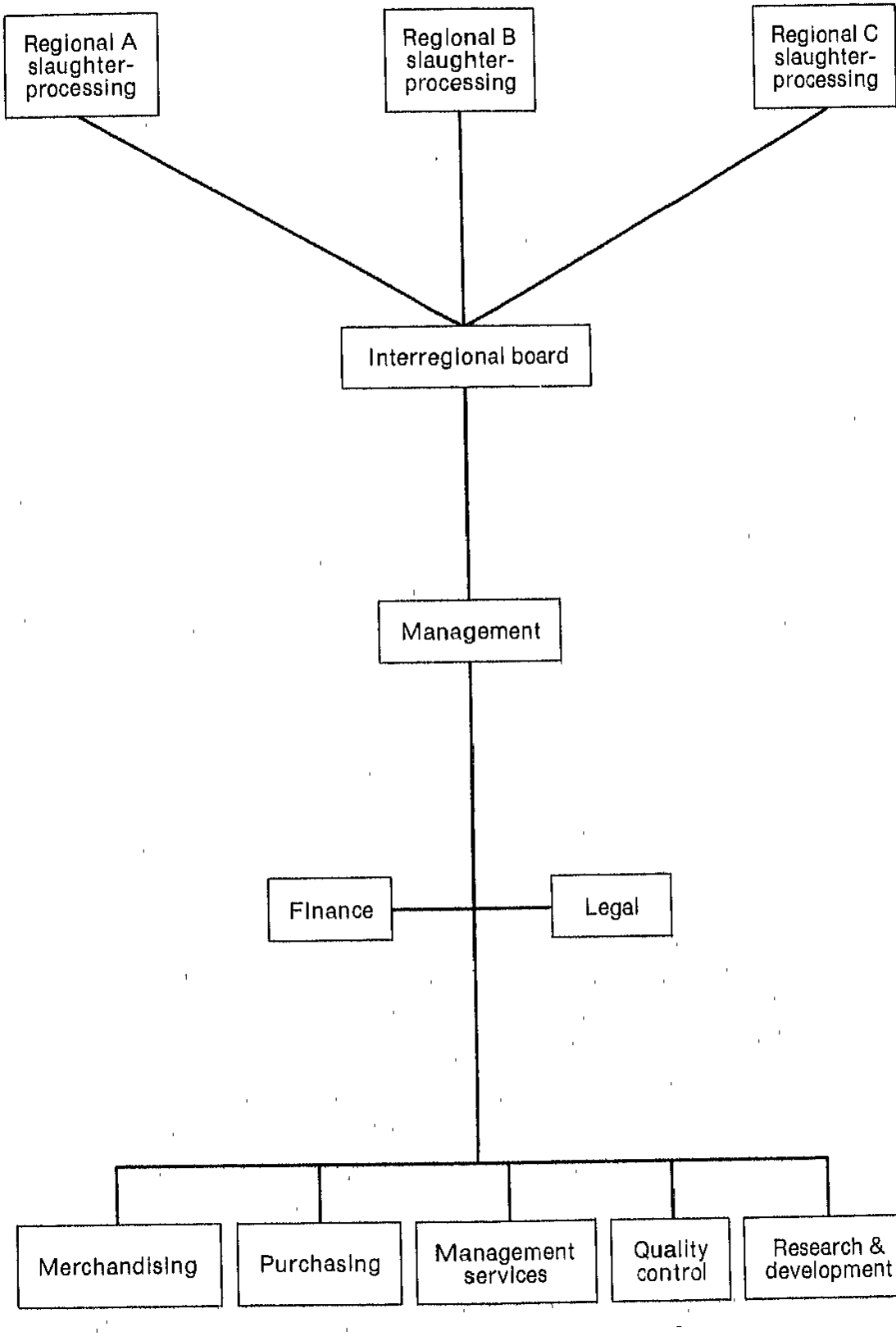


Figure 6--Interregional red meats marketing cooperative



ing power to procure packaging materials, spices, cleaning compounds, other supplies, and small equipment items for the regionals. The interregional may also recruit and train regional managers, supervise their activities, and provide other management services. Returns could be allocated to regional members by department or services used.

Another type of interregional cooperative could specialize in processing and marketing byproducts for its member regionals. Cooperatives that slaughter and process meat must have adequate markets for byproducts to compete effectively. Processing and marketing of byproducts are costly and require expensive technology, but the returns can be significant. A single firm processing pharmaceuticals can utilize the glands and byproducts from several packing firms. The processing and exporting of hides requires special handling facilities, equipment, and ready access to world ports. Since byproducts can be readily shipped to a central plant for processing and distribution, a specialized interregional could adequately serve regional's needs with a limited investment by each cooperative (fig. 7).

Many farm-supply regionals also can utilize large amounts of byproducts in manufacturing animal feeds. Regionals could make contracts or arrangements to assure themselves supplies of byproducts from the interregional.

Control of interregionals in other fields is generally exercised by board representation selected from the management or directors of the member regionals. Thus, providing for producer control and allocating returns to producers are major concerns for any type of interregional cooperative.

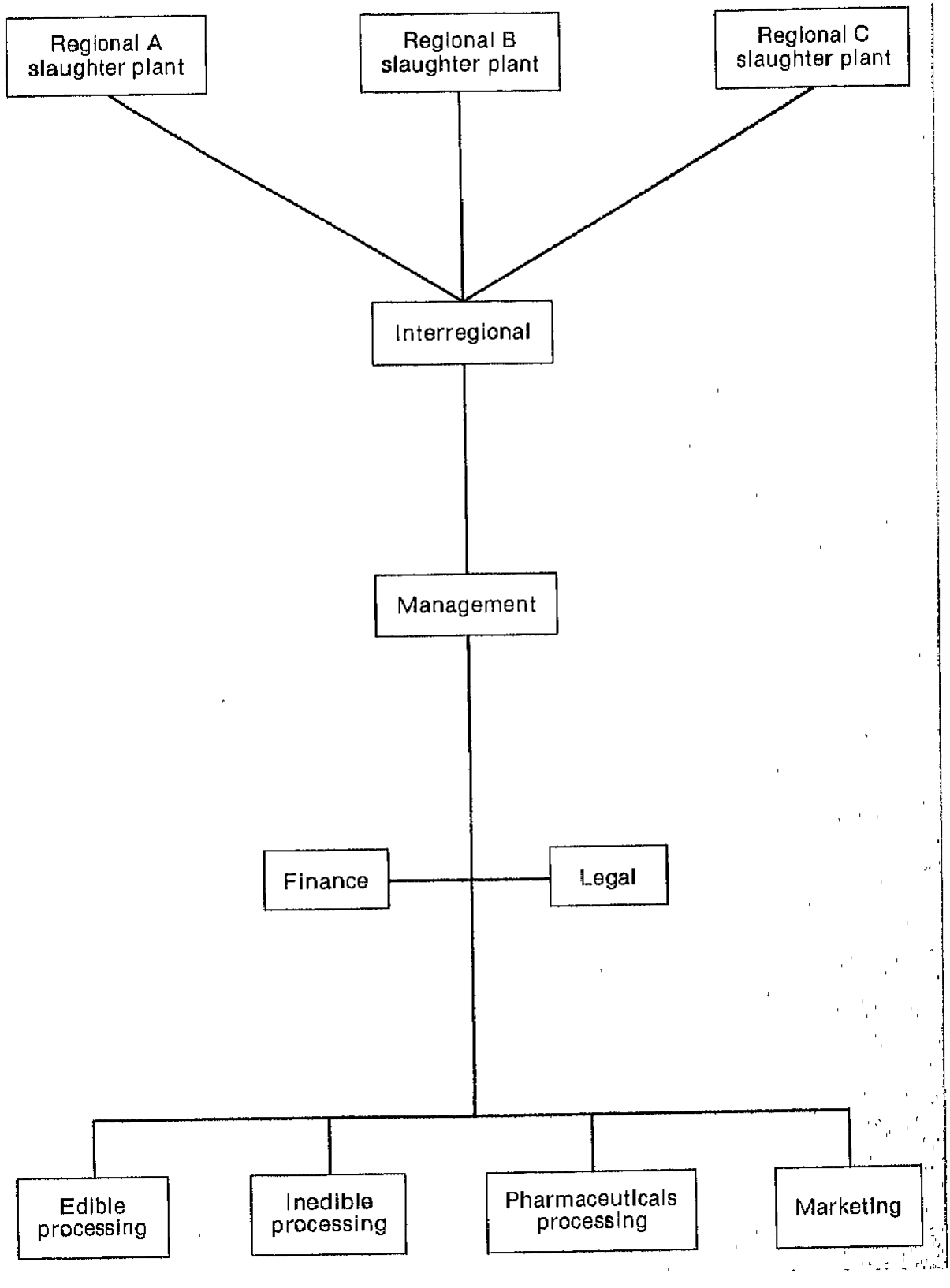
An interregional red meats cooperative could be owned by a combination of federated regionals, combined federated and centralized regionals, and centralized regionals (fig. 8). In the case of federated regional ownership, member-producers' control would be quite remote. They would exercise control via their membership control in their local cooperative which, in turn, has membership control in the federated regional. With centralized regional ownership, producers would be one step closer to direct control in the interregional because they would have direct membership in the regional. However, livestock producer input could still be difficult to achieve unless some device such as producer advisory committees was used.

Returns from the interregional's meatpacking operations would be given to the regional members who would, in turn, give them to local cooperative members of federated regionals or to direct producer-members of centralized regionals. Local cooperatives would then give the returns to their producer-members.

This basic pattern of allocating returns has been established by interregionals in other fields. However, in interregional operations the regional and local cooperatives usually handle the supplies or commodities involved and can keep accurate records of each producer's patronage. It would be much more difficult to keep such producer patronage records in an interregional meatpacking cooperative that deals directly with producers, or buys livestock through public markets and order buyers, rather than dealing with its regional members. Some method would need to be devised for allocating returns through the regional members to producers on the basis of their patronage with the interregional cooperative.

Special consideration must be given to livestock procurement by an interregional slaughter cooperative. Local producers have a basic interest in improving the red meats marketing system with the ultimate goal of higher returns for the animals they produce. The location of the interregional's slaughter plants might limit the geographic area where purchases could be made, but the entire market price level could be enhanced by the cooperative buying activity. Therefore, all producer-members of a regional could benefit

Figure 7--Interregional byproduct processing and marketing cooperative



at least indirectly even though some might not be able to market their animals through the interregional slaughter cooperative.

Several interesting alternatives could be used for procurement of livestock from producer-members of the regionals involved. Figure 9 illustrates a multiple-method procurement system for an interregional slaughter cooperative. Procurement could be conducted by the plant procurement staff, through livestock marketing cooperative order buyers, through noncooperative order buyers, or by development of forward contract feeding and marketing programs.

Preference would be given to purchasing livestock from regional's member-producers where possible. However, cyclical changes, feed supplies, marketing patterns, and other factors may make nonmember purchases necessary at times to achieve adequate returns for regional owners. Marketing agreements with regionals' members may also assist in orderly marketing and increased returns if a higher level of operating and marketing efficiency were reached by the plant and management.

Successful livestock marketing cooperatives exist in most areas of livestock production and provide a wide variety of live animal marketing services for their producer-owners. Several advantages are apparent in developing close cooperation between an interregional slaughter cooperative and these existing livestock marketing cooperatives to facilitate procurement:

1. Member-producers use their livestock marketing cooperative and have a close affiliation or ownership interest in it.

2. Livestock cooperatives have skilled sales and buying staffs which could reduce procurement costs, particularly in many geographic areas where livestock procurement would not be feasible from the plant location.

3. Duplication of cooperative services, facilities, and staff could be avoided.

4. Through their field staffs and information and educational programs, livestock cooperatives could assist in developing production programs, emphasizing quality, and developing adequate supplies timed to meet the needs of the interregional slaughter cooperative.

5. Excessive competition among cooperatives could be minimized through coordination and marketing arrangements designed to benefit both groups.

A concept of cooperation between the interregional cooperative and an existing livestock marketing cooperative is illustrated in figure 10. The interregional slaughter cooperative could contract with the livestock marketing cooperative to perform the procurement function for part or all of its livestock needs. At the same time the plant's procurement manager could place orders directly with the livestock cooperative's order buying company for day-to-day livestock needs not met through the procurement contract. Buying activity would concentrate on purchasing from the livestock cooperative's members or on markets used by its members. The livestock cooperative's net earnings from the procurement contract would be returned to its members and earnings from the interregional slaughter cooperative would accrue to its regional owners.

The livestock cooperative would continue to operate its sales agency independently. The additional demand of the interregional could aid the cooperative sales agency. This method of procurement is currently operated by many private plants through cooperative or proprietary order buying companies.

In setting up such procurement arrangements it should be remembered that current regulations promulgated under the Packers and Stockyards Act prohibit certain management and financial relationships between a livestock marketing cooperative and a cooperative engaged in meatpacking. A livestock marketing cooperative also should ensure that

Figure 8--Producer control and allocation of returns in an interregional red meats cooperative

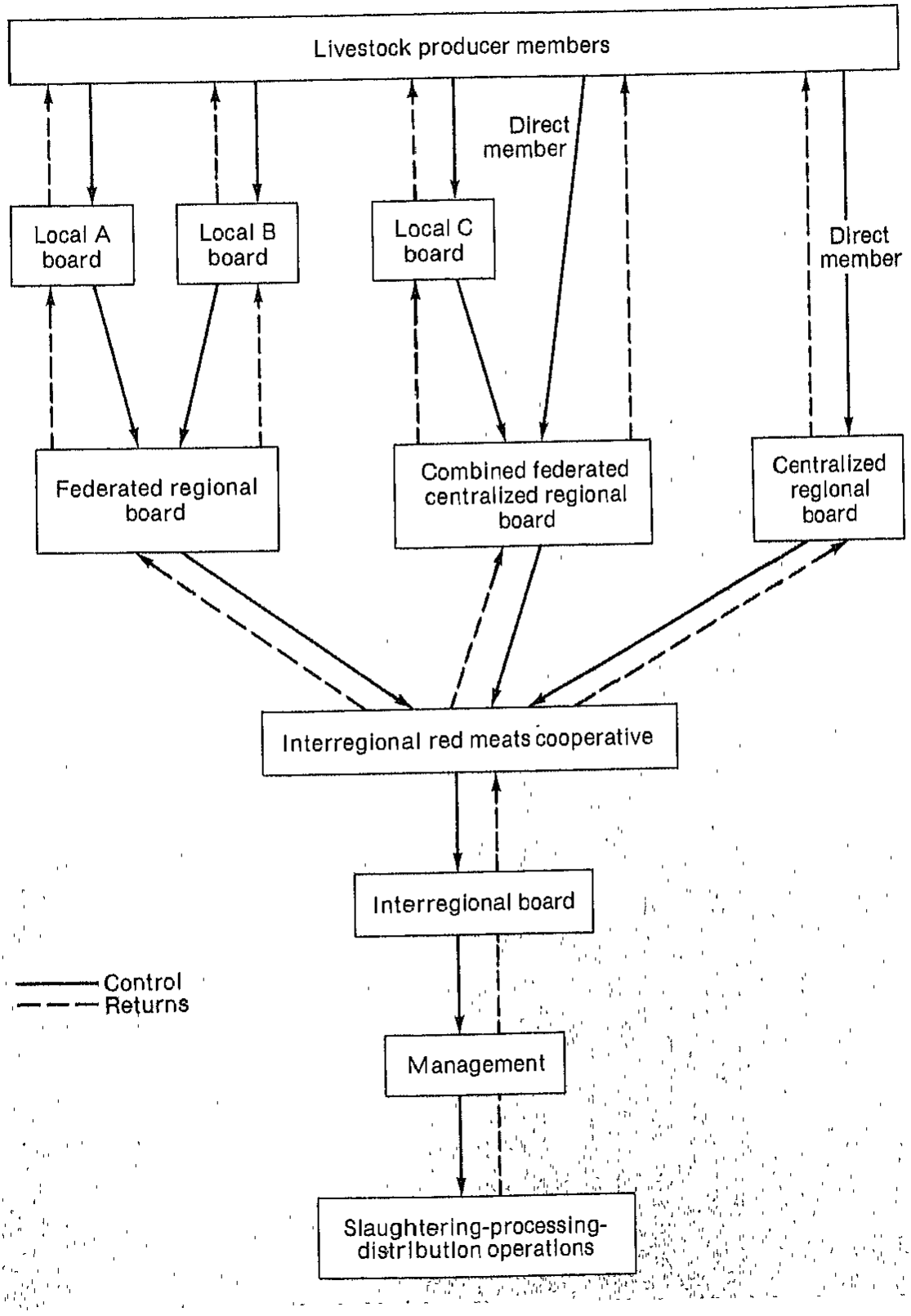


Figure 9--Potential livestock procurement methods for an interregional slaughter cooperative

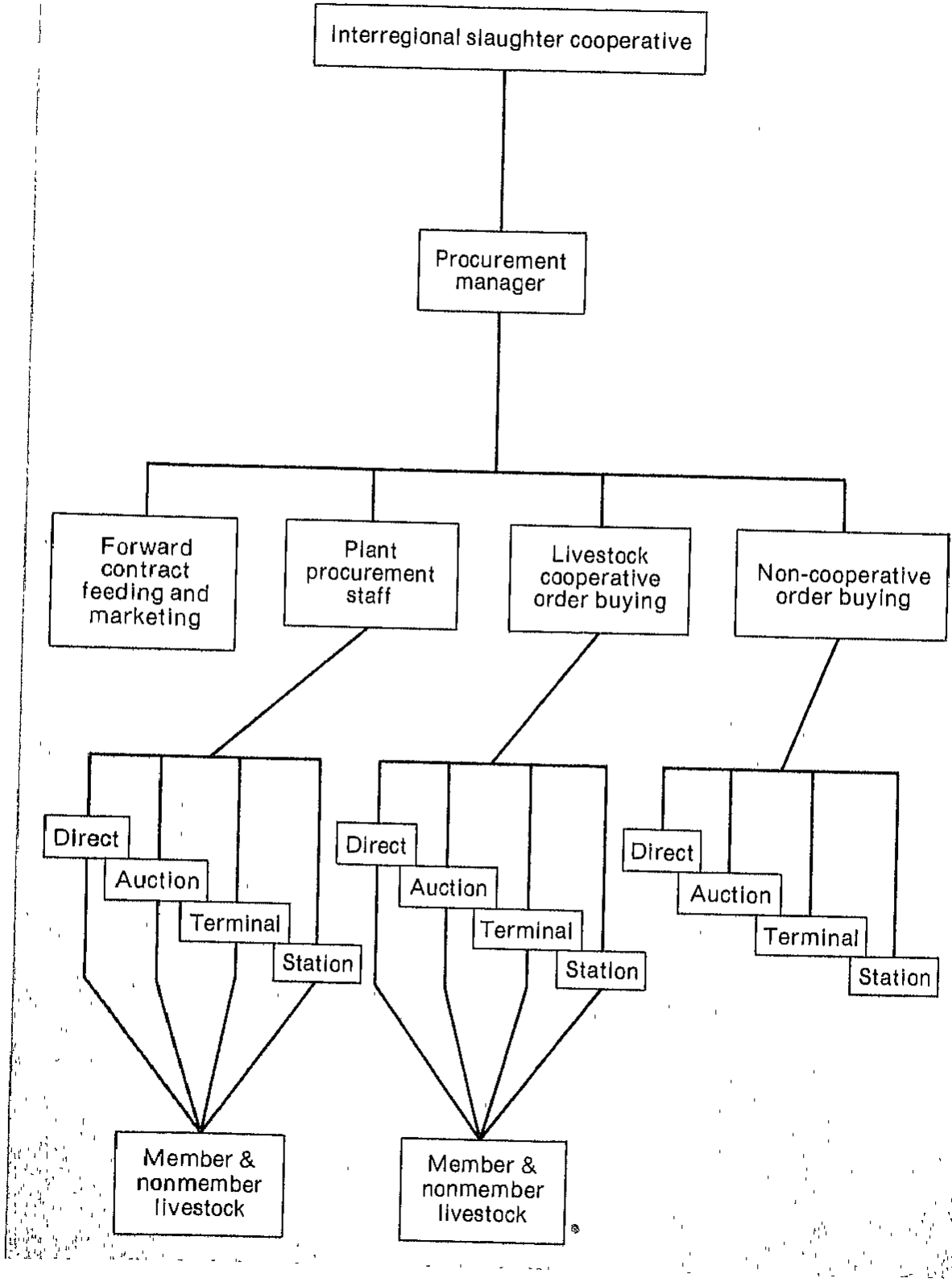
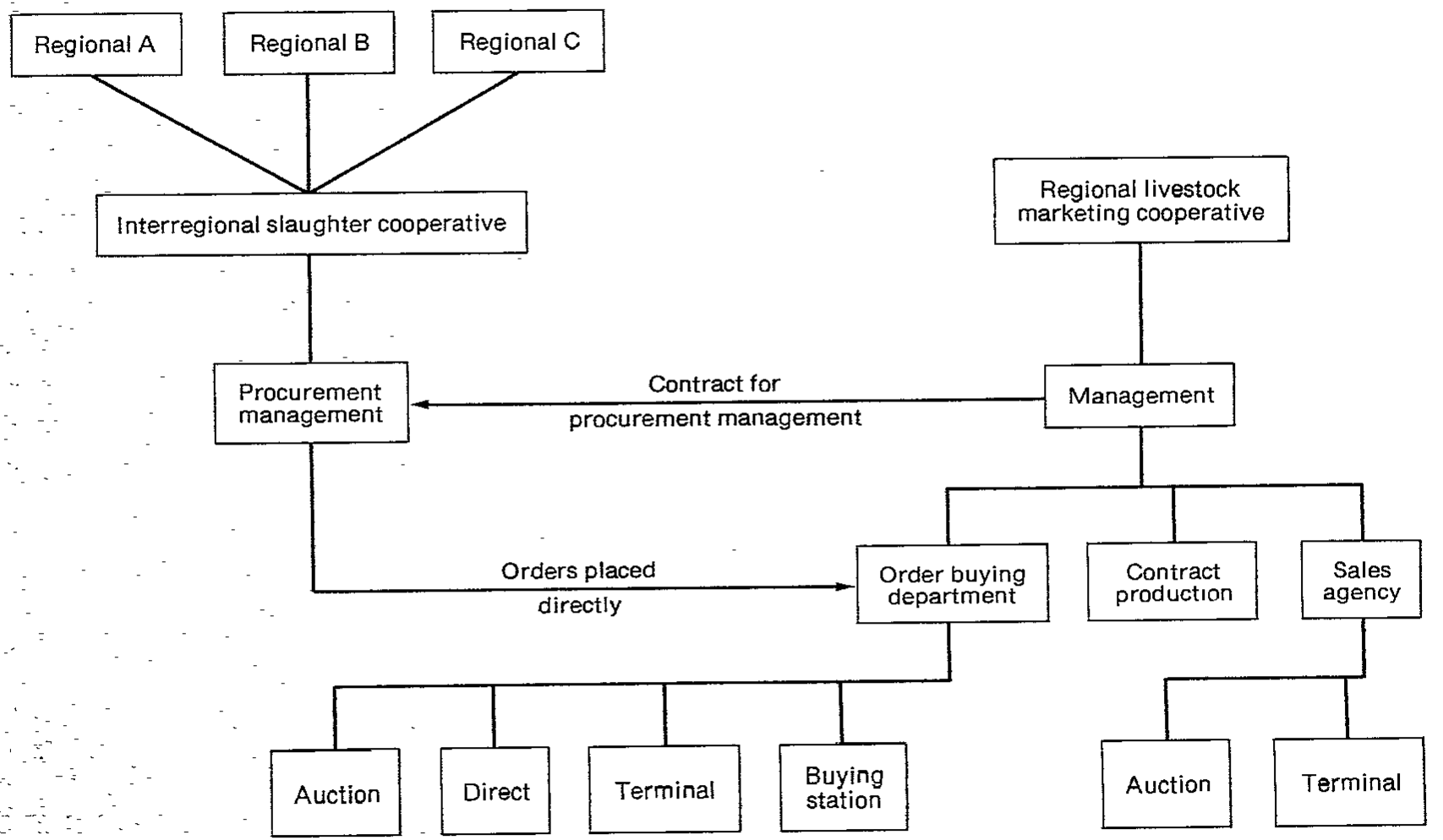


Figure 10--Potential livestock procurement arrangements between an interregional slaughter cooperative and a regional livestock marketing cooperative



a procurement contract would not put it in a position where it is unable to serve the best interests of its members.

Centralized Cooperative—The need for joint cooperative activity in the red meats industry also could be met through the organization of a multi-State or national centralized meatpacking cooperative. In this approach, existing meatpacking cooperatives would consolidate their operations into a centralized cooperative and they would lose their individual identity. Their producer-members would become direct members of the new cooperative. The centralized cooperative would operate all facilities and perform all slaughtering, processing, merchandising, and distribution functions. The direct producer-members would supply the necessary risk capital and would therefore own and control the cooperative. The centralized concept is illustrated in figure 11.

Existing cooperatives might lease their facilities to the centralized cooperative for a period of time as a means of reducing its initial capital requirements. These cooperatives also might continue to manage their meatpacking operations temporarily under a management contract with the centralized cooperative. Most of the existing cooperatives' staffs would be retained and used to develop an overall management team capable of directing a large centralized meatpacking complex. This would aid in maintaining continuity of management during the transition period.

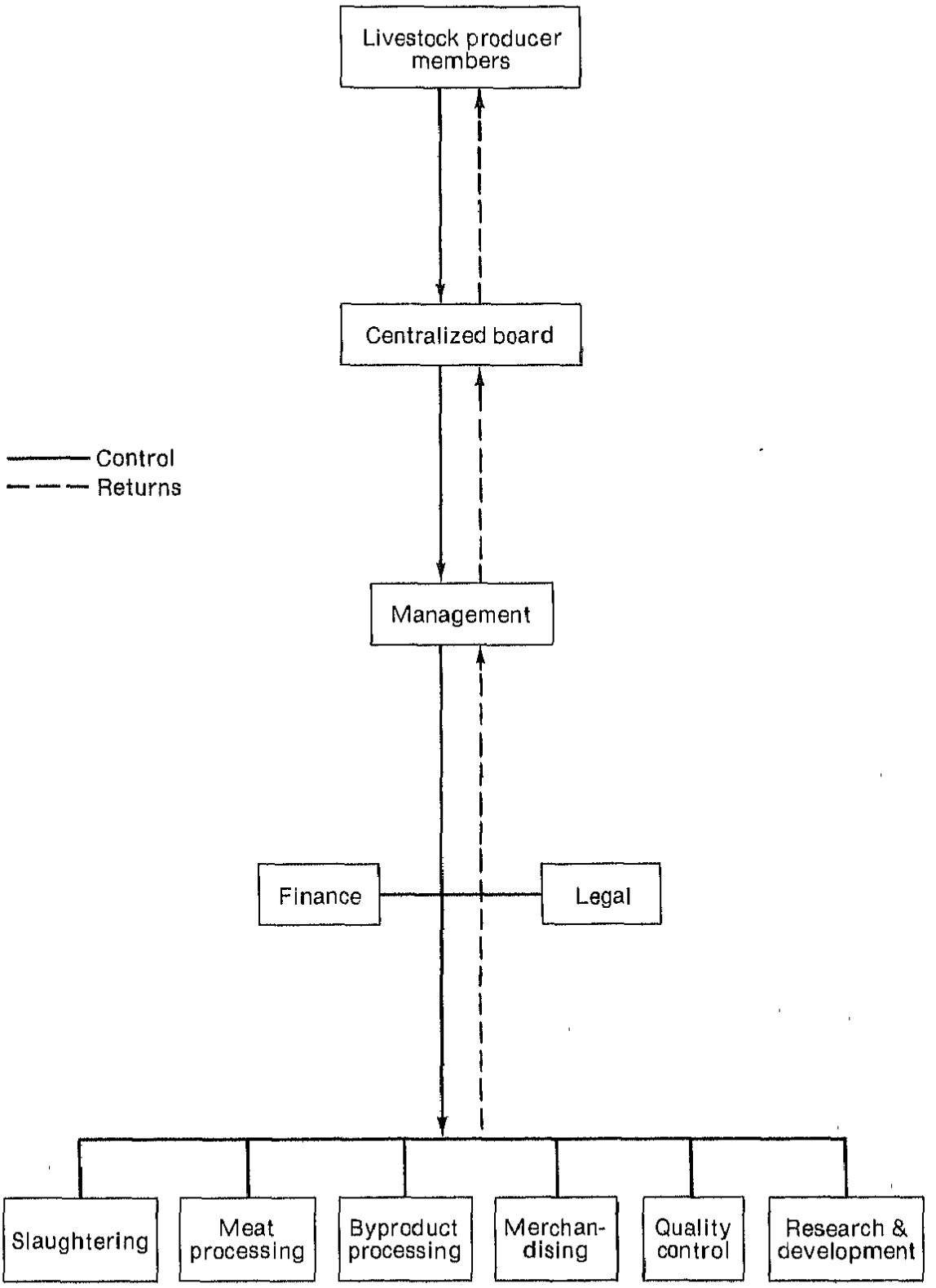
The centralized cooperative would develop long-range plans to expand into new markets and new production areas that would provide for feasible operations. It would expand operations to serve new areas as producer interest developed and capital became available. New members would be required to provide some of the equity capital for facilities located in their area.

The centralized cooperative approach offers most of the advantages previously discussed for the interregional approach. In addition, it provides for direct producer control and is without the problems associated with keeping patronage records and allocating returns to producers that would beset an interregional.

The centralized cooperative concept probably would be difficult to implement, however. The greatest obstacle is the fact that livestock producers *per se* do not own most existing cooperative meatpacking facilities. Most of them are owned and controlled by the general membership of regional farm supply-marketing cooperatives. There is no reason to believe that these regionals would give control of their meatpacking operations to a centralized cooperative controlled directly by livestock producers, particularly if outright purchase was not made at the outset. Such a move would separate control and accountability from ownership and owners would have no assurance that their producer-members would continue to have cooperative meatpacking services available.

The centralized approach also could have the same weakness as the operation of independent, local meatpacking cooperatives—the lack of adequate equity capital sources and financial staying power. If livestock producers, acting through a centralized cooperative, wanted to buy all the existing meatpacking assets of regionals, they would need more than $100 million. It is unlikely that livestock producers will be able to assemble sufficient funds to implement the centralized concept. Even if producers could buy all the assets, they probably would not have the financial staying power needed to ride out the cycles and other financial stresses of meatpacking. Large regional cooperatives could, of course, invest in nonvoting equity securities of the centralized cooperative to help it achieve the needed financial strength.

Figure 11--Centralized red meats cooperative



Producer Control

Opportunities for livestock producers' input into the management of the meat processing cooperatives through which they market their livestock vary widely. Producer control, in terms of membership voting and director representation, runs the gamut from zero producer input to 100 percent member participation. A key element in the degree of member participation is the size and form of organization structure used to carry out the primary meat processing function. The following discussion briefly summarizes the producer role and control of several cooperatives currently involved in meatpacking.

Livestock producers hold direct membership in Farmland Foods, Inc. But Farmland Industries, Inc., holds in excess of 99 percent of the voting rights of Farmland Foods. The makeup of its directorate also reflects the predominant Farmland Industries' control. The sheer size of Farmland Foods' meat processing activity calls for capital outlays that only a firm with substantial financial resources can muster. In addition, the high risk nature of the business lends credence to Farmland's philosophy that management control should be vested in the provider of risk capital.

Landmark, Inc., carries on its meat processing activities strictly as a corporate service to livestock producers. Livestock producers do not have membership status in or any particular financial or patronage obligation to Landmark's meatpacking subsidiaries. In contrast to the Farmland approach, however, the level of investment is of far lesser magnitude and its marketing program is aimed at a specific market segment within the State of Ohio.

Gold Kist Inc. operates its meatpacking activities as a division or department. Thus, control over meatpacking is exercised by the total Gold Kist membership, not just livestock producers.

Shen-Valley Meat Packers, Inc., represents the "pure," traditional approach to membership participation and control as evidenced by its one-member, one-vote method of voting coupled with an active program of purging inactive producers.[33]

Producers in the Farmland territory apparently wanted Farmland to get into meatpacking primarily to inject a competitive element and to provide an alternative buyer for their hogs and cattle. They were not too interested in exercising management control or in financing their own red meats marketing firm. Both the Landmark and Gold Kist experiences, although of different magnitude, seem to be consistent in holding to a management philosophy of minimizing producer participation in the affairs of their meatpacking operations. This approach is probably typical of regional cooperatives—if the regional puts up the funds, then it will exercise management control.

Under such circumstances, and, consistent with the fact that livestock procurement has geographic limitations, the question of achieving producer control becomes critical. A system of producer advisory committees may be a realistic method for a regional to provide for producer participation in the affairs of a packer-processor division or subsidiary.

Mention of producer control to hired executives of large regional cooperatives can bring interesting reactions, some of which express concern about the possibility of members "telling managers how to run the cooperative." As a matter of fact, members do have certain management responsibilities. But because of factors ranging from inertia to lack of interest and perhaps a desire to avoid responsibility, members do not exercise their responsibilities. As a result, the board of directors and hired executives tend to fill the vacuum.

[33]Producer control in individual meatpacking cooperatives is discussed in more detail in the appendix.

Members do have responsibilities in the following areas:

1. Adopt and amend bylaws.
2. Select a competent board of directors.
3. Study issues and cast an informed vote.

The first two responsibilities are generally recognized as falling within the bailiwick of members rather than the board or hired executives, notwithstanding isolated examples in which a board of directors can amend bylaws. It is in the third category where cooperatives vary in the types of issues left to a mandate of its members. For example, which of the following issues are generally decided by a membership vote?

1. Major expansion in facilities.
2. Major change in kind of services offered.
3. Major changes in capital structure, especially when additional investment by members is involved.

Entry of producers into slaughtering and processing by organizing a cooperative, or by entry of a cooperative in which they are members certainly appears to be an excellent example of a policy decision in which producers should have a voice. But whether a producer's voice is heard depends to a large extent on the voting methods and communications processes used.

For example, if a cooperative uses a districting arrangement for electing directors, the individual producer may vote for delegates who in turn meet to nominate a district director. Under some circumstances individual members may never attend an annual meeting; only their delegates attend. Under other circumstances individual members may attend a corporate annual meeting but only their delegates vote. And, in still other examples individual producers do in fact vote for their nominee at the corporate annual meeting.

Underlying all these procedures is the problem of achieving an informed membership. The key to success revolves around the willingness of hired executives and the board of directors to carry out procedures to keep members informed and to be aware of members' needs. Systematic procedures for reaching members through paid fieldmen, advisory committees, meetings, and periodic written and verbal reports by top management are essential.

Producer control does not mean "telling managers how to run the cooperative." It does mean an informed membership that can result in intelligent voting by members on directors and issues in which they do bear responsibility. On the other side of the picture, it means accountability by hired and elected management to members to show how they are conducting business of the cooperative.

Meat Retailing

Retailing is the final stage of a complete producer-to-consumer meat system. Producers are considering doing their own retailing to (1) capture retail margins, (2) create new efficiencies in retailing and the entire system to increase profits, (3) provide consumers with a quality product, and (4) receive better feedback from consumers to guide future production.

Meat retailing attracts attention because red meats (excluding poultry) account for about 25 percent of retail sales and retailing is a major factor in the farm-retail price spread. Beef retailing, for example, accounts for about 80 percent of the cost of moving beef from the feedlot to the consumer. This is equivalent to about $185 a head, including

transportation from the packer. Producers think there must be some way of getting the job done for less.

A number of individual producers and relatively small associations of producers are currently engaged in retailing. About a dozen operations have been described in trade journals over the last 2 or 3 years. The primary product of these operations is beef, but pork and other items are often carried to complement the beef line.

These operations are relatively small, handling 50 to 100 cattle per week. The cattle are usually custom slaughtered and processed, although some associations do their own processing.

A variety of methods is being used to sell the meat. These include "old-fashioned" butcher shops, farmers' markets, door-to-door salesmen, freezer display cases in gas stations and convenience food stores, and refrigerated trucks in shopping center parking lots.

Some expansion of the above retailing methods is likely. However, the market for such operations appears to be limited because the bulk of red meat sales occurs in supermarkets where the consumer can make all food purchases in one place. It is unlikely that livestock producers will purchase supermarkets as a means of retailing red meats. Even though red meats account for 25 percent of food sales, the total product mix appears to be too diverse to justify the supermarket investment just to merchandise meat. Therefore, producers probably will not integrate forward in the red meats industry beyond the wholesale function, except for a few local opportunities available to relatively low volume producers or associations retailing 100-500 cattle a week.

Livestock Production Credit

Livestock producers will need increasing amounts of credit as the total value of livestock in production increases. Total value will increase as the livestock population and the value per head increases. Also, as livestock herds increase in size a greater proportion of them must be financed by credit rather than the producers' own capital.

A recent study of credit needs in eight Southeastern States shows that cattle producers alone will need 3 times more credit in 1983 than in 1973.[34] This study found that producers usually turn to their local production credit association or commercial bank to meet most of their livestock credit needs. Production credit associations will probably expand their agricultural loans. There is some concern, however, whether commercial banks will expand their credit to producers when the banks have more profitable alternatives such as consumer credit.

There are many ways that livestock cooperatives could also extend credit to members. Many marketing cooperatives currently offer this service. They have a separate credit division or subsidiary that makes loans to finance all aspects of livestock production. The cooperative employees understand credit as well as livestock production and its cash flow needs. At the end of a production cycle, the livestock is usually marketed by the cooperative and the loan balance may be deducted from the proceeds of the sale.

More cooperatives could add credit to their list of services. It could be handled as a completely separate function or tied more closely to other services offered. Cooperatives that seek to implement a more integrated livestock production, processing, and distribution system may make credit an integral part of the operation. For example, feeder calf producers, retaining ownership through the growing stage or beyond, could be given an

[34]R. L. Fox and L.L. Monroe, Need for Expanding Livestock Credit in the Southeast, FCS Research Report 28, March 1975.

advanced payment on credit when the animals entered each stage. When the cattle were sold, the loan principal and interest could be deducted automatically and the balance sent to producers.

Another example would be one in which a cooperative in hog processing purchased feeder pigs and feed and delivered them to a feeder on an open account. At the end of the feeding period, the producer would deliver the hogs to the slaughter plant. Once the value of the hogs was determined, it would be credited to the feeder's account and the balance would be sent to him.

There could be several advantages to securing credit through the cooperative: (1) The producer would be dealing with a lender that understands livestock production, (2) the cooperative could receive volume discounts, and (3) efficiency in handling credit along with other services passes at least some benefits on to producers.

Cooperatives might borrow from many sources, such as banks for cooperatives, commercial banks, and insurance companies, to obtain the capital necessary for providing production credit to producers. They also might organize a special livestock credit cooperative that would qualify for loan discounting privileges through the Federal intermediate credit banks.

CONCLUSIONS

Our analysis of the structural changes taking place in the red meats industry indicates that the position of independent, family-size livestock producers will be seriously threatened if current trends continue, as we expect they will. There is little that producers, working alone, can do to counteract these trends and protect their position in the industry. However, livestock producers could make greater use of cooperatives to help them maintain or improve their economic position and exercise some semblance of control over their own destiny. Producer cooperatives could play a much more significant and, possibly different, role in the industry in the future than in the past.

Producers currently own and control most of the Nation's livestock production resources. They own the livestock longer than any other segment of the industry, contribute more to the animal's value and bear most of the risks of producing and marketing live animals. Producers' ownership and control usually end when livestock is sold to marketing or meatpacking firms. But producers and their cooperatives should be concerned with the economic health of the entire industry because of the interdependence of the production, marketing, processing, and distribution stages.

The basic question therefore is: "What role, or roles, should cooperatives strive to achieve in the red meats industry of the future?" There is no clear-cut answer to this question that is applicable to all cooperatives or all groups of producers in all areas of the Nation. Livestock producers must establish their objectives and evaluate alternative cooperative systems in light of these objectives, as well as the future economic environment in which they expect to find themselves.

Cooperatives could use the following objectives to determine their future role in the red meats industry.

1. Improve producers' returns.
2. Maintain or improve market access for producers.
3. Assist producers in maintaining or increasing their level of control over their own destiny and over the direction of the industry.
4. Improve pricing accuracy.
5. Improve industry efficiency and coordination.

The alternatives available for cooperative effort can be summarized as follows:

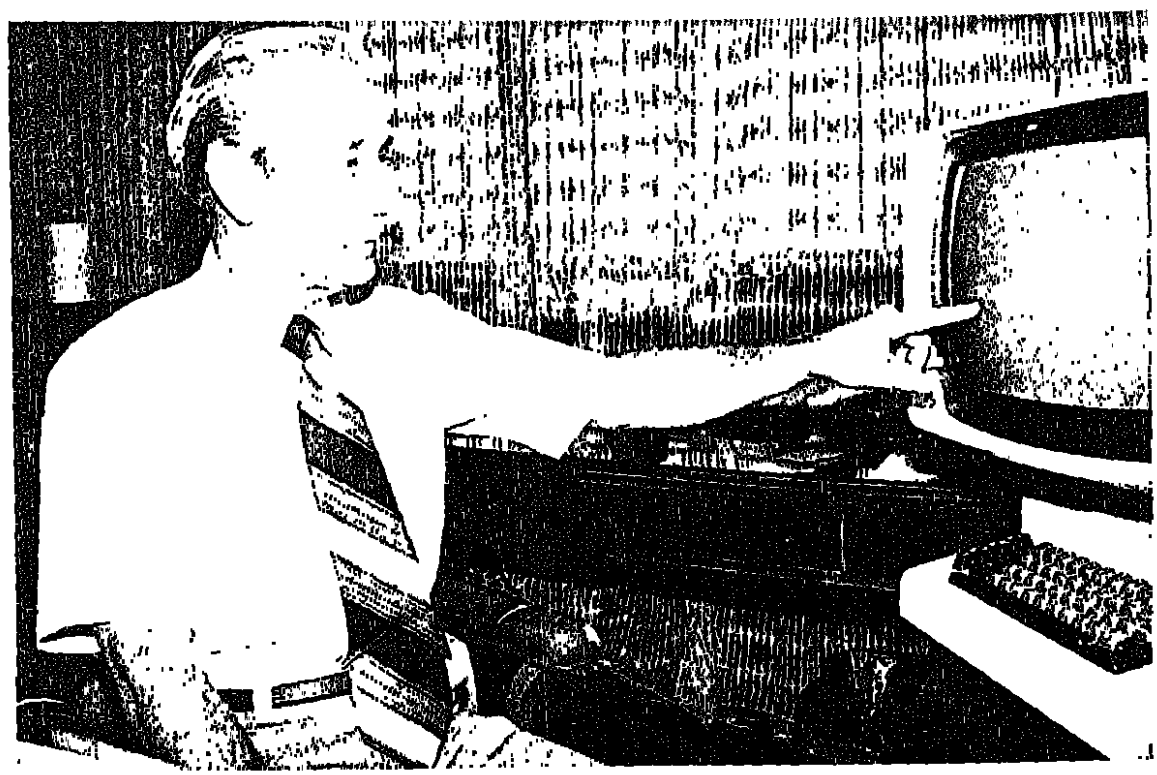
1. Live animal marketing through
   a. Centralized electronic exchanges.
   b. Bargaining associations.
2. Meatpacking, including slaughtering, processing, and distribution.

These alternatives need not be mutually exclusive but several special factors must be taken into account when considering them.

Live Animal Marketing

Given the producer's desire to have farm gate values established for his raw products, producers should consider live animal marketing alternatives for accomplishing their objectives. Either a centralized electronic exchange or bargaining could be viable under certain conditions and improve producers' competitive position. Both alternatives would require less capital and subject producers to less risk than engaging in slaughtering, processing, and distribution.

The electronic exchange alternative would work in areas where a number of buyers still were available. In areas where there were only a few buyers or in a contract production environment, however, bargaining probably would be the more viable marketing approach. Successful implementation of either alternative probably would necessitate new legislation to require all major slaughterers to purchase their livestock through an electronic exchange or to bargain in good faith with a recognized producer association.



Modern data processing and and communications equipment in a centralized livestock exchange could help maintain an open, competitive market environment. It would also enlarge the market area without requiring buyer, seller and livestock to come together physically.

Meatpacking

If certain conditions develop in the industry or in specific areas, producers should consider engaging in meatpacking. Greatly increased buyer concentration or substantial integration would result in a loss of markets for live animals and a further deterioriation of the pricing system, thus eroding producers' market position. Under these conditions cooperatives may need to engage in slaughtering, processing, and distribution to attain their objectives. There are also several other reasons why some cooperatives might engage in meatpacking, such as to provide a complete line of services to members, to add a line of meat products to complement other product sales, to obtain a dependable source of animal byproducts for feed manufacturing, and to have a standard for measuring the performance of the meatpacking industry.

Before entering meatpacking, however, cooperatives must carefully consider the nature of the industry and the requirements for a successful operation. Meatpacking is a high-risk, capital-intensive, low-profit industry. To be successful, cooperatives must enter on a large scale to provide for the most efficient operations and to allow cooperatives to have a significant impact on the wholesale meat market. Millions of dollars would be required to finance slaughtering and processing facilities and operations, a nationwide distribution system, and development of processed product brands necessary for effective market penetration. Thousands of individual producers would need to commit their livestock and contribute risk capital to the meatpacking venture. And a few large regional or interregional cooperatives would have to be involved in the cooperative meatpacking sector to make certain it is well coordinated and well financed.

Cooperatives could follow several alternative strategies should they decide the meatpacking role is necessary to attain their objectives. One strategy would be to begin immediately to structure a cooperative sector that would capture a significant share of the meatpacking industry. If producers believe a meatpacking role eventually will be necessary in their area or across the Nation, cooperatives could take the leadership today to develop an effective strategy for a phased entry into meatpacking rather than put it off until there is a much more urgent need. Not only might entry be easier now, but entry at a later date without proper planning might have to be made at greater cost and risk.

A more cautious strategy would be to begin with the implementation of a centralized exchange or bargaining system for marketing live animals and to plan to engage in meatpacking at a later time. By beginning with live animal marketing, a cooperative could achieve a committed producer-membership that would provide a base volume of livestock to facilitate later entry into meatpacking with less risk. It also could provide producers substantial near-term benefits with a smaller capital investment and risk than immediate entry into meatpacking. Development of a centralized exchange or bargaining system could effectively serve the interim marketing needs of all types of livestock producers. It could facilitate market access, improve pricing accuracy and marketing efficiency, give producers more control over the marketing system, and generally improve producers' incomes.

A third strategy would be to initiate both live animal marketing and meatpacking activities from the outset. A centralized exchange or bargaining system could be used in some areas while meatpacking is used in others. The live animal marketing cooperatives could be phased out or converted if a need arose for more meatpacking activities.

APPENDIX

Producer Control In Meatpacking Cooperatives

Farmland Foods, Inc.

Farmland Foods, Inc. is a majority owned subsidiary of Farmland Industries, Inc., by virtue of the fact that Farmland Industries owns 99 percent of Farmland Foods' outstanding $1 par value common voting stock. The remaining shares are held by individual livestock producer-members. Voting is on a share basis.

Farmland Foods' nine-man board of directors includes six Farmland Industries board members, five of whom are livestock producers. The remaining 3 members are hired management executives—the president and corporate vice president, respectively, of Farmland Industries and the president of Farmland Foods. The makeup of the board affirms the strong control Farmland Industries exerts over the operations of Farmland Foods.

Farmland Foods pays patronage refunds to its producer-members on a dollar volume basis—currently 35 percent in cash and 65 percent in the form of capital equity certificates. These certificates are redeemed when the recipients reach 65 years of age if the certificates have been outstanding for 5 years, when the certificates have been outstanding for 5 years if the recipient is over 65 years of age, or upon the recipient's death.

Gold Kist Inc.

Gold Kist acquired the McEver and Beaver packing companies through an exchange of Gold Kist due date paper for these firms' ownership equities. The meatpacking operations are a division of Gold Kist and are controlled by the overall corporate board of directors. Livestock producers become direct voting members of Gold Kist through their patronage.

Gold Kist uses the profit center concept in operating its various purchasing and marketing activities. Thus economic benefits in the form of patronage refunds go to members on the basis of business transacted with the respective Gold Kist divisions.

Teeters Packing Company and French City Meats, Inc.

Both of these meatpacking companies are wholly owned subsidiaries of Landmark, Inc. None of the equity capital or ownership interest is held by livestock producers nor are purchases from livestock producers or dealers classified as either member or nonmember business. In short, neither of these subsidiaries is operated on a cooperative basis. Landmark itself is a federated cooperative whose 70 plus members are cooperatives located throughout Ohio. None of these locals sell cattle or hogs to the two packing plants or have a direct ownership interest in them.

Shen-Valley Meat Packers, Inc.

Shen-Valley is a centralized meat processing cooperative whose 1,200 livestock producer-members each hold one share of $10 par value common voting stock. The one-member, one-vote cooperative principle is maintained by limiting to one the number of voting shares a member may own. Membership is restricted to livestock producers who have marketed through the cooperative at least once during the preceding year. The cooperative thus follows a policy of purging its membership of inactive members.

The cooperative's board of directors is composed of livestock producers and one public director named by the director of the State Cooperative Extension Service as required by State statute.

APPENDIX TABLES

Appendix table 1—Farms with livestock, 1950-69

Type of livestock and year	Number of farms	Percent of all farms	Number of livestock
All cattle and calves			1,000
1969	1,719,403	63.0	106,381
1964	2,283,881	72.3	105,558
1959[1]	2,674,176	72.1	92,534
1954[2]	3,650,714	76.3	95,027
1950	4,065,173	75.5	76,920
Hogs and pigs			
1969	686,097	25.1	55,455
1964	1,081,438	34.2	54,080
1959[1]	1,848,784	49.9	67,949
1954[2]	2,365,708	49.5	57,093
1950	3,013,549	56.0	55,789
Sheep and lambs			
1969	170,888	6.3	21,611
1964	234,789	7.4	25,471
1959[1]	341,952	9.2	33,945
1954[2]	361,001	7.5	31,619
1950	320,351	5.9	31,406

[1]Some of the decrease in number of farms and number of livestock between 1954 and 1959 is due to a change in the definition of a farm. The minimum size of a farm was increased from 3 acres in 1954 to 10 acres in 1959. However, farms below the minimum were included if they had gross sales of more than $150 in 1954 and more than $250 in 1959.

[2]Data for Alaska and Hawaii not included.

Source: Bureau of Census. 1969 Census of Agriculture

Appendix table 2—Average number of livestock sold per farm, 1964, 1969, and 1974

Type of livestock	Average number sold per farm		
	1964	1969	1974
Cattle and calves	32	45	48
Hogs and pigs	104	138	165
Sheep and lambs	102	112	127

Source: Bureau of Census. Census of Agriculture. Selected years.

Appendix table 3—Farms selling cattle and calves, by number sold per farm, 1969

Number sold per farm	Farms		Head sold	
	Number	Percent of total	Number	Percent of total
			1,000	
1- 19	946,154	57.5	8,064	10.8
20- 49	433,878	26.4	13,322	17.9
50- 99	149,058	9.0	10,069	13.5
100-199	68,896	4.2	9,282	12.4
200-499	35,140	2.1	10,222	13.7
500-999	7,886	.5	5,228	7.0
1,000 or more	4,506	.3	18,429	24.7
Total	1,645,518	100.0	74,616	100.0

Source: Bureau of Census. 1969 Census of Agriculture.

Appendix table 4—Farms selling hogs and pigs, by number sold per farm, 1969

Number sold per farm	Farms		Head sold	
	Number	Percent of total	Number	Percent of total
			1,000	
1- 9	73,762	11.4	355	.4
10- 99	322,178	49.9	13,967	15.6
100-199	113,197	17.6	15,735	17.6
200-499	102,999	16.0	30,686	34.4
500-999	25,904	4.0	16,987	19.0
1,000 or more	7,089	1.1	11,583	13.0
Total	645,129	100.0	89,313	100.0

Source: Bureau of Census. 1969 Census of Agriculture

Appendix table 5—Farms selling sheep and lambs, by number sold on farm, 1969

Number on farm	Farms		Head sold	
	Number	Percent of total	Number	Percent of total
			1,000	
1- 99	126,704	77.8	3,561,273	19.5
100- 299	17,239	10.6	2,161,939	11.8
300- 999	7,406	4.5	2,956,459	16.1
1,000-2,499	2,456	1.5	3,031,043	16.6
2,500-4,999	806	.5	2,332,970	12.7
5,000 or more	430	.3	3,329,022	18.2
None[1]	7,918	4.8	935,377	5.1
Total	162,959	100.0	18,308,083	100.0

[1]Class I-V farms only. These farms had no sheep and lambs at the time of the census enumeration but had sold some during the year.

Source: Derived from Bureau of Census. 1969 Census of Agriculture.

Appendix table 6—Number of cattle feedlots and fed cattle marketed, by capacity of feedlot and State, 1976

State	Under 1,000 head feedlot capacity		1,000 head and over feedlot capacity														Total all feedlots	
			1,000 - 1,999		2,000 - 3,999		4,000 - 7,999		8,000 - 15,999		16,000 - 31,999		32,000 and over		Total			
	Lots	Cattle marketed	Lots	Cattle marketed	Lots	Cattle marketed	Lots	Cattle marketed	Lots	Cattle marketed	Lots	Cattle marketed	Lots	Cattle marketed	Lots	Cattle marketed	Lots	Cattle marketed
	No.	1,000 head	No.	1,000 head	No.	1,000 head	No.	1,000 head	No.	1,000 head	No.	1,000 head	No.	1,000 head	No.	1,000 head	No	1,000 head
Ariz	3	2	8	5	7	10	5	25	7	60	9	185	9	508	45	793	48	795
Calif	24	6	19	19	13	35	26	151	36	426	25	681	7	526	126	1,838	150	1,844
Colo	318	154	59	112	58	242	29	215	18	274	16	573	4	574	184	1,990	502	2,144
Idaho	504	11	13	16	19	38	13	45	8	100	6	130	0	0	59	329	563	340
Ill	13,930	815	57	70	[3]13	[3]50	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	70	120	14,000	935
Ind	10,483	343	12	11	[3]5	[3]11	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	17	22	10,500	365
Iowa	32,830	2,506	79	87	65	135	19	92	7	85	0	0	0	0	170	399	33,000	2,905
Kans	5,880	522	9	8	15	72	38	399	24	506	26	969	8	608	120	2,562	6,000	3,084
Mich	1,680	210	29	35	[3]10	[3]26	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	39	61	1,719	271
Minn	11,132	734	40	39	[3]28	[3]31	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	68	70	11,200	804
Mo	7,966	300	22	20	8	12	4	14	0	0	0	0	0	0	34	46	8,000	346
Mont	70	4	15	14	16	15	13	48	[3]5	[3]23	[1]	[1]	[1]	[1]	49	100	119	104
Nebr	15,000	1,263	160	345	100	340	47	340	30	580	9	300	4	290	350	2,195	15,350	3,458
N Mex	3	0	0	0	[3]10	[3]8	8	43	15	148	4	107	0	0	37	306	40	306
N Dak	886	47	[3]14	[3]24	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	14	24	900	71
Ohio	7,775	322	[3]25	[3]65	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	25	65	7,800	387
Okla	312	23	9	13	12	42	7	62	8	106	[3]7	[3]432	[1]	[1]	43	655	355	678
Oreg	316	30	4	2	[3]11	[3]44	[3]4	[3]81	[1]	[1]	[1]	[1]	[1]	[1]	19	127	335	157
Pa	[3]5,998	[3]111	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	6,000	114
S Dak	8,532	311	40	43	16	32	7	52	[3]5	[3]141	[1]	[1]	[1]	[1]	68	268	8,600	579
Tex	912	60	25	33	24	62	26	170	35	583	43	1,521	24	1,518	177	3,887	1,089	3,947
Wash	199	24	[1]	[1]	[1]	[1]	[3]11	[3]65	[3]9	[3]275	[1]	[1]	[1]	[1]	20	340	219	364
Wis	7,914	158	[3]14	[3]24	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	14	24	7,928	182
23 States[2]	132,667	7,956	649	935	423	1,159	263	1,788	205	3,059	150	4,971	60	4,312	1,750	16,224	134,417	24,180

[1]Omitted to avoid disclosure.

[2]The 23 States totals show actual number of feedlots and number of animals marketed in each size group.

[3]Lots and marketings from larger or smaller size groups are included to avoid disclosing individual operations

Source: Statistical Reporting Service, USDA, Cattle on Feed January 1977, pp. 11-12

Appendix table 7—Farms selling cattle fattened on grain and concentrates, by number sold per farm, 1969[1]

Number sold per farm	Farms		Head sold	
	Number	Percent of total	Number	Percent of total
			1,000	
1- 19	64,689	44.1	530	2.3
20- 49	33,002	22.5	1,026	4.5
50- 99	19,352	13.2	1,338	5.8
100-199	14,083	9.6	1,930	8.4
200-499	10,760	7.3	3,201	13.9
500-999	2,805	1.9	1,871	8.1
1,000 or more	2,057	1.4	13,093	57.0
Total	146,748	100.0	22,989	100.0

[1]Class I-V farms only; Class VI farms, selling less than $2,500 of agricultural products, excluded.
Source: Bureau of Census. 1969 Census of Agriculture

Appendix table 8—Distribution of packer livestock purchases by market outlet, 1923, 1930, 1940, 1950, and 1960-75.

Year	Terminal			Auctions[1]			Direct of country dealers[1]		
	Cattle	Hogs	Sheep and lambs	Cattle	Hogs	Sheep and lambs	Cattle	Hogs	Sheep and lambs
					Percent				
Federal meat inspection series:									
1923	89.6	76.0	85.4	—	—	—	10.4	24.0	14.6
1930	88.2	59.9	84.7	—	—	—	11.8	40.1	15.3
1940	75.8	46.7	63.8	—	—	—	24.2	53.3	36.2
1950	74.9	39.9	57.4	—	—	—	25.1	60.1	42.6
P&SA series:									
1960	45.8	30.3	35.4	15.6	8.7	10.6	38.6	61.0	54.0
1961	42.3	29.2	36.8	19.7	11.2	10.9	38.0	59.6	52.3
1962	42.6	29.3	35.4	18.8	11.1	15.2	38.6	59.6	49.4
1963	39.1	26.6	30.0	17.8	12.7	14.0	43.1	60.7	56.0
1964	36.5	23.8	28.6	18.9	13.1	13.7	44.6	63.1	57.7
1965	34.0	23.4	25.5	20.9	13.7	12.1	45.1	62.9	62.4
1966	31.0	22.1	21.9	19.8	15.2	13.5	49.2	62.7	64.6
1967	28.7	18.8	19.0	18.2	15.5	16.2	53.1	62.7	64.8
1968	24.7	19.3	18.6	18.3	14.1	15.0	57.0	66.6	66.4
1969	21.2	18.9	16.1	17.0	13.7	13.1	61.8	67.4	70.8
1970	18.4	17.1	15.1	16.4	14.3	12.4	65.3	68.5	72.5
1971	15.9	16.9	13.6	15.5	13.8	12.3	68 6	69.3	74.0
1972	13.2	16.3	13.7	14.6	13.3	12.0	72.2	70.4	74.3
1973	11.9	17.3	12.3	15.1	12.4	14.7	73.0	70.3	72.9
1974	13.9	17.6	11.5	16.4	12.4	13.5	69.6	70.0	75.1
1975	14.4	16.3	10.0	19.7	12.1	15.6	65.9	71.6	74.4

[1]Auctions included with direct or country dealers for 1923-50. Auction market purchases were not significant until about 1940.
Source: Packers and Stockyards Administration. USDA. Resume. Selected issues.

Appendix table 9—Number and size of commission firms at terminal stockyards, by region, 1975[1]

Region	Number of terminal stockyards	Number of commission firms handling annually— Less than 50,000 animal units	50,000 to 99,999 animal units	100,000 or more animal units	Total
Northeast and Southeast	4	14	0	1	15
East North Central and East South Central	10	30	22	8	60
West North Central	11	45	45	28	118
West South Central	6	22	15	6	43
Mountain	0	0	0	0	0
West Coast	0	0	0	0	0
Total	31	111	82	43	236

[1]Size measured in animal units. An animal unit = 1 head of cattle, 1 calf, 3 hogs, or 4 sheep.
Source: Packers and Stockyards Administration, USDA.

Appendix table 10—Number and size of auction markets, by region, 1975[1]

Region	Number of auction markets handling annually— Less than 25,000 animal units	25,000-49,999 animal units	50,000-99,000 animal units	100,000-149,000 animal units	150,000 or more animal units	Total
Northeast	68	18	0	[3]3	[2]	89
Southeast	123	49	16	3	0	191
East North Central	99	44	15	[3]7	[2]	165
East South Central	107	60	22	[3]6	[2]	195
West North Central	272	95	75	24	10	476
West South Central	114	113	62	5	4	298
Mountain	40	33	22	7	7	109
West Coast	45	25	8	[3]3	[2]	81
Total markets	868	437	220	53	26	1,604
Percent of markets	54	27	14	3	2	100
Percent of total livestock sold	21	27	28	12	12	100
Average number of animal units per market	12,886	35,550	68,276	120,215	246,179	33,985

[1]Size measured in animal units. An animal unit = 1 head of cattle, 1 calf, 3 hogs, or 4 sheep.
[2]Omitted to avoid disclosure.
[3]Includes one or two markets in larger size categories to avoid disclosure of individual operations. These markets are properly allocated in the total.
Source: Packers and Stockyards Administration, USDA.

Appendix table 11—Number and size of livestock dealers, by region, 1975[1]

Region	Number of dealers handling annually—					
	Less than 2,000 animal units	2,000-4,999 animal units	5,000-14,999 animal units	15,000-24,999 animal units	25,000 or more animal units	Total
Northeast	512	68	39	6	3	628
Southeast	259	83	60	21	18	441
East North Central	784	205	137	44	87	1,257
East South Central	215	91	71	27	28	432
West North Central	997	452	467	121	139	2,176
West South Central	335	180	170	44	53	782
Mountain	382	152	130	30	30	724
West Coast	289	84	48	16	11	448
Total dealers	3,773	1,315	1,122	309	369	6,888
Percent of total dealers	55	19	16	5	5	100

[1]Size measured in animal units. An animal unit = 1 head of cattle, 1 calf, 3 hogs, or 4 sheep.
Source: Packers and Stockyards Administration, USDA.

Appendix table 12—Number and size of plants and firms slaughtering steers and heifers, by region, 1974

Region	Number slaughtering annually—						
	Less than 50,000 head	50,000-99,999 head	100,000-249,999 head	250,000-499,999 head	500,000-999,999 head	1,000,000-3,000,000 head	Total
			Plants				
Northeast	82	[3]4	1	1	0	0	86
Southeast	[3]78	1	1	0	0	0	78
East North Central	131	10	[3]6	1	0	0	147
East South Central	35	[3]4	1	1	0	0	39
West North Central	74	20	24	12	3	0	133
West South Central	99	8	4	3	0	0	114
Mountain	58	6	7	4	0	0	75
West Coast	72	18	3	0	0	0	93
Total plants	628	68	46	20	3	0	765
Percent slaughtered	[2]28	17	25	24	6	0	100
Total firms	596	52	17	10	5	5	685

[1]Omitted to avoid disclosure.
[2]Includes volume of several small firms not reporting to Packers and Stockyards Administration, USDA, to account for total commercial slaughter.
[3]Includes one or two plants in larger size categories to avoid disclosure of individual operations. These plants are properly allocated in the total.
Source: Packers and Stockyards Administration, USDA.

Appendix table 13—Number and size of plants and firms slaughtering cows and bulls, by region, 1974

Region	Number slaughtering annually— Less than 50,000 head	50,000-99,999 head	100,000-199,999 head	200,000-300,000 head	Total
			Plants		
Northeast	90	[1]	[1]	0	90
Southeast	[3]78	[1]	[1]	0	78
East North Central	118	[3]10	[1]	0	128
East South Central	[3]45	[1]	0	0	45
West North Central	94	9	[3]3	[1]	106
West South Central	113	[3]9	[1]	[1]	122
Mountain	[3]69	[1]	[1]	0	69
West Coast	[3]81	[1]	[1]	0	81
Total plants	681	32	[3]6	[1]	719
Percent slaughtered	[2]63	26	11	[1]	100
Total firms	623	27	8	3	661

[1]Omitted to avoid disclosure

[2]Includes volume of several small firms not reporting to Packers and Stockyards Administration, USDA, to account for total commercial slaughter.

[3]Includes one or two plants in larger size categories to avoid disclosure of individual operations These plants are properly allocated in the total

Source Packers and Stockyards Administration, USDA.

Appendix table 14—Number and size of plants and firms slaughtering hogs, by region, 1974

Region	Number slaughtering annually— Less than 50,000 head	50,000-249,999 head	250,000-499,999 head	500,000-999,999 head	1,000,000-4,999,999 head	5,000,000-9,000,000 head	Total
				Plants			
Northeast	53	8	[3]3	[1]	[1]	0	64
Southeast	74	13	7	3	0	0	97
East North Central	72	10	13	7	5	0	107
East South Central	33	13	7	3	0	0	56
West North Central	34	4	3	24	12	0	77
West South Central	75	[3]9	[1]	[1]	0	0	84
Mountain	35	[3]5	[1]	[1]	0	0	40
West Coast	24	[3]6	[1]	[1]	[1]	0	30
Total plants	400	62	34	40	19	0	555
Percent slaughtered	[2]9	9	15	36	31	0	100
Total firms	394	48	16	19	11	4	492

[1]Omitted to avoid disclosure.

[2]Includes volume of several small firms not reporting to Packers and Stockyards Administration, USDA, to account for total commercial slaughter.

[3]Includes one or two plants in larger size categories to avoid disclosure of individual operations. These plants are properly allocated in the total.

Source: Packers and Stockyards Administration, USDA.

Appendix table 15—Number and size of plants and firms slaughtering calves, by region, 1974

Region	Number slaughtering annually— Less than 25,000 head	25,000-49,999 head	50,000-99,999 head	100,000-250,000 head	Total
			Plants		
Northeast	84	5	5	3	97
Southeast	37	0	[3]3	[1]	40
East North Central	[1]55	[1]	[3]3	[1]	58
East South Central	22	0	0	0	22
West North Central	[1]15	[1]	[1]	[1]	15
West South Central	49	[3]4	[1]	0	53
Mountain	29	0	0	0	29
West Coast	[3]44	[1]	0	0	44
Total plants	330	12	10	6	358
Percent slaughtered	[2]36	12	21	31	100
Total firms	325	12	8	7	352

[1]Omitted to avoid disclosure.

[2]Includes volume of several small firms not reporting to Packers and Stockyards Administration, USDA, to account for total commercial slaughter

[3]Includes one or two plants in larger size categories to avoid disclosure of individual operations All plants are properly allocated in the total

Source: Packers and Stockyards Administration, USDA.

Appendix table 16—Number and size of plants and firms slaughtering sheep and lambs, by region, 1976

Region	Number slaughtering annually— Less than 25,000 head	25,000-99,999 head	100,000-299,999 head	300,000-999,999 head	1,000,000-2,000,000 head	Total
			Plants			
Northeast	51	[1]4	[1]	[1]	0	55
Southeast	19	0	0	0	0	19
East North Central	39	0	[3]3	[1]	0	42
East South Central	5	0	0	0	0	5
West North Central	[3]11	[1]	[3]4	[1]	0	15
West South Central	11	0	[3]3	[1]	0	14
Mountain	[3]30	[1]	[1]	3	0	33
West Coast	12	3	[3]6	[1]	0	21
Total plants	176	8	12	8	0	204
Percent slaughtered	[2]9	4	33	54	0	100
Total firms	174	11	10	4	3	202

[1]Omitted to avoid disclosure.

[2]Includes volume of several small firms not reporting to Packers and Stockyards Administration, USDA, to account for total commercial slaughter

[3]Includes one or two plants in larger size categories to avoid disclosure of individual operations. All plants are properly allocated in the total.

Source: Packers and Stockyards Administration and Statistical Reporting Service, USDA.

Appendix table 17—Number and size of retail grocery firms, 1972

Annual sales per firm (millions)	Number of firms	Number of establishments	Percent of sales
Less than 1	147,901	149,666	22 5
1 - 9	6,874	12,483	17.2
10 -24	232	2,541	3.8
25 -49	90	1,745	3 4
50 -99	52	3,227	4 1
100 or more	86	24,621	49.0
Total	155,235	194,283	100 0

Source Bureau of the Census 1972 Census of Retail Trade Vol. 1, pp. 1-97.

Appendix table 18—Number of food service establishments and sales, 1976

Institutions	Establishments	Annual sales
	Number	Millions
Restaurants	173,150	24,490
Fast foods	104,990	15,240
Retail	55,000	2,560
Colleges	2,830	3,063
Schools	112,700	6,600
Health	28,660	6,742
Employee	N.A.	4,455
Transportation	N.A.	931
Hotel-motel	43,200	2,990
Recreation	25,400	1,890
Total	545,930	72,961

N.A = not available

Source: J. David Morissy. Opportunity for Cooperative Growth. Food Service Industry. Farmer Cooperatives. Sept. 1976. p. 5.

Appendix table 19—Number of restaurants and other eating places, by annual sales per firm, 1972

Annual sales per firm (millions)	Number of firms	Number of establishments	Percent of sales
Less than 1	219,735	227,720	69.8
1- 9	2,040	9,678	13.8
10-24	55	2,760	2.9
25-49	23	2,113	2.8
50-99	20	5,079	4.5
100 or more	10	5,786	6.2
Total	221,883	253,136	100.0

Source: Bureau of the Census. 1972 Census of Retail Trade. Vol. 1, pp. 1-107

Appendix table 20—Commercial livestock slaughter by the 4 largest firms for each species, 1920, 1930, 1940, and 1950-75

Year	Cattle	Calves	Hogs	Sheep
		Percent		
1920[1]	49 0	34 4	43.8	61 8
1930	48.5	45 5	37.5	68.1
1940	43 1	45.6	44.3	66 1
1950	36 4	[2]35.4	40.9	63.6
1951	32 0	[2]34.6	40 5	62.9
1952	34.3	[2]36.0	39 3	63.5
1953	34.4	[2]39.0	37 9	[2]62 4
1954	32.4	[2]37 5	38 7	[2]61 4
1955	30.8	[2]36.6	[2]40.6	[2]61 0
1956	29.8	[2]37.4	[2]40.2	[2]61.5
1957	[2]29 3	[2]35 4	[2]38.7	[2]58.4
1958	27.4	[2]32.4	[2]35.9	[2]56.6
1959	24.7	[2]29.8	[2]33.5	[2]54 4
1960	[2]23.5	[2]29.0	[2]34.9	[2]54.7
1961	[2]24.2	[2]30.1	[2]33.7	[2]54.7
1962	[2]23.7	[2]28.2	[2]34.4	[2]55.4
1963	[2]22.9	[2]29.1	[2]33.8	[2]54.5
1964	[2]22.6	[2]32.1	[2]34.9	[2]56.8
1965	[2]23.0	[2]32.4	[2]35.2	[2]57.8
1966	[2]22.4	[2]30.4	[2]31.7	[2]59.0
1967	[2]22.2	[2]30.2	[2]29.8	[2]58.1
1968	[2]21.5	[2]29.0	[2]30.1	[2]54.2
1969	[2]23.0	[2]27.3	[2]33.5	[2]60.4
1970	[2]21.3	[2]23.8	[2]31.5	[2]53.1
1971	[2]21.4	[2]21.6	[2]31.8	[2]53.2
1972	[2]22.3	[2]21 8	[2]31.6	[2]54.7
1973	[2]22.8	[2]23.7	[2]32.9	[2]51.8
1974	[2]20.9	[2]23.5	[2]32.7	[2]55.7
1975	[2]19.3	[2]24.3	[2]33.1	[2]57.5

[1]Data for 1920 includes the "Big Five" (Armour, Cudahy, Morris, Swift, and Wilson) which became the "Big Four" in 1923 when Armour acquired Morris

[2]Includes one or more firms other than the original "Big Four" (Armour, Cudahy, Swift, and Wilson)

Source: (1) 1920 and 1950-56; Record of Civil Action No. 58 C 613, *United States* vs. *Swift & Company*, et al, Government exhibits 5A, 5B, 5C, 5D; and (2) 1957-75, Annual reports of meatpackers filed with the Packers and Stockyards Administration (P&SA-125).

Appendix table 21—Cattle and calf slaughter, as a percent of U.S. slaughter, number of major slaughter plants, and percent of slaughter by the 4 largest firms, by State, region, and the U.S., 1975[1]

State and region	Cattle			Calves		
	Percent of U S slaughter	No. of major plants	Percent by 4 firms	Percent of U S slaughter	No of major plants	Percent by 4 firms
New England	0 3	4	100 0	4.2	0	[2]100.0
New York	0 8	6	53 9	16 5	3	72 7
New Jersey	0 6	2	96.7	3.9	1	96.0
Pennsylvania	2 0	14	50 1	6 0	1	65 3
North Atlantic	3 7	26	30 9	30 7	5	47 5
Ohio	2 4	18	34 7	0 6	0	68 0
Indiana	1.7	7	70 9	—	—	—
Illinois	3 0	13	70 1	2 8	1	[2]100.0
Michigan	1.4	8	54.3	2 2	0	[2]100 0
Wisconsin	4.3	11	72 5	9 3	2	100 0
East North Central	12 9	57	33.2	15.0	3	78 0
Minnesota	3 8	12	58 4	0 3	0	[2]100 0
Iowa	12.1	23	53.5	9.2	2	[2]100.0
Missouri	2.7	15	70 5	0 5	0	100 0
North Dakota	0.7	2	100 0	(0 1)	0	[2]100 0
South Dakota	2 0	6	80.9	—	—	—
Nebraska	13 3	31	50.7	0.2	0	[2]100.0
Kansas	7.3	16	69 2	(0 1)	0	[2]100 0
West North Central	41 8	105	36 4	10 2	2	96 5
Delaware and Maryland	0.2	2	77.3	0.2	0	[2]100.0
Virginia	0.4	5	88 5	5 4	1	99 6
West Virginia	0.1	1	84.6	(0.1)	0	[2]100 0
North Carolina	0 2	3	82.1	(0.1)	0	[2]100.0
South Carolina	0.2	1	91.3	3.4	1	[2]100.0
Georgia	1 1	7	64.0	0 4	0	100 0
Florida	1.4	8	66.1	3.7	1	97 5
South Atlantic	3.6	27	32.4	13.1	3	91 6
Kentucky	0.7	6	85 2	(0 1)	0	[2]100 0
Tennessee	1.7	10	64.4	0.9	0	100 0
Alabama	0 4	4	96.7	1 1	0	[2]100.0
Mississippi	1.2	7	84.0	2.2	1	100 0
Arkansas	0 7	6	77.4	1 0	0	95.2
Louisiana	0.5	5	82.7	2.7	0	85 4
South Central	5.2	38	30.9	7 9	1	53 0
Oklahoma	1.8	10	76.3	0.3	0	81.8
Texas	11.4	58	42 6	16.2	0	45.5
Southern Plains	13.2	68	39.2	16.4	0	44 8
Montana	0.3	1	97 9	—	—	—
Idaho	0.8	6	83.2	—	—	—
Wyoming	(0.1)	0	[2]100.0	—	—	—
Colorado	5.7	14	62 8	—	—	—
New Mexico	1.5	5	95.6	—	—	—
Arizona	1.3	5	85.2	(0.1)	0	[2]100 0
Utah	0.7	7	75.3	(0.1)	0	[2]100 0
Nevada	(0.1)	1	[2]100.0	—	—	—
Mountain	10.2	39	42 8	0.1	0	[2]100.0
Washington	1.4	7	82 5	0.3	0	[2]100.0
Oregon	0.5	7	72.2	0.5	0	[2]100 0
California	7.4	48	16 4	5.7	1	64.1
Pacific	9.3	62	15 0	6.6	1	56.3
Alaska	—	—	—	—	—	—
Hawaii	0 1	1	[2]100 0	—	—	—
United States	100.0	423	22 0	100 0	15	28.3

[1]Percentages based upon livestock purchases for slaughter, by State where slaughtered, excluding firms reporting less than 1,000 head of cattle or 2,000 head of all species Slaughter plants were considered major if minimum purchases for slaughter were 10,000 head of cattle or 50,000 head of calves.

[2]Less than 4 firms included in percentage (0 1) denotes value less than 0 05 percent

Source: Packers and Stockyards Administration, USDA

Appendix table 22—Cattle slaughter, as a percent of U.S. slaughter, number of major slaughter plants, and percent of slaughter by the 4 largest firms, by State, region, and the U.S., 1975[1]

State and region	Steers and heifers			Cows and bulls		
	Percent of U.S.	No. of major plants	Percent by 4 firms	Percent of U.S.	No. of major plants	Percent by 4 firms
New England	(0.1)	0	88.9	0.9	4	100.0
New York	0.4	2	88.3	2.0	4	60.8
New Jersey	0.6	2	98.8	0.5	2	94.1
Pennsylvania	1.2	4	77.4	4.0	8	56.2
North Atlantic	2.3	8	53.1	7.4	18	30.3
Ohio	2.6	12	42.3	2.0	6	37.3
Indiana	2.1	5	72.1	0.8	2	82.1
Illinois	3.7	8	76.4	1.3	5	85.0
Michigan	1.1	3	50.2	2.0	6	76.4
Wisconsin	1.6	6	90.2	11.2	11	71.7
East North Central	11.1	34	31.3	17.4	30	48.7
Minnesota	3.3	6	76.9	5.2	8	67.9
Iowa	13.5	20	56.8	8.4	11	76.4
Missouri	2.9	6	75.9	2.1	6	65.3
North Dakota	0.5	1	100.0	1.3	2	100.0
South Dakota	1.1	4	95.9	4.2	5	92.1
Nebraska	16.2	24	56.7	6.0	14	57.3
Kansas	8.9	13	77.0	3.0	8	76.8
West North Central	46.4	74	42.3	30.2	54	28.7
Delaware and Maryland	0.2	1	83.0	0.2	0	88.2
Virginia	0.3	1	92.4	0.7	3	83.1
West Virginia	0.1	0	90.9	0.2	0	83.3
North Carolina	0.2	1	95.5	0.4	1	79.5
South Carolina	0.2	1	97.8	0.2	1	87.0
Georgia	0.6	2	71.0	2.2	6	81.2
Florida	1.0	3	79.8	2.5	7	75.7
South Atlantic	2.6	9	48.7	6.4	18	40.1
Kentucky	0.2	1	100.0	2.0	4	94.1
Tennessee	1.6	6	77.2	1.8	7	62.6
Alabama	0.5	3	97.4	0.3	2	[2]100.0
Mississippi	0.3	2	95.6	3.6	7	84.1
Arkansas	0.3	2	83.1	1.8	3	88.3
Louisiana	0.4	2	96.7	0.7	3	87.0
South Central	3.2	16	43.8	10.1	26	41.4
Oklahoma	1.7	5	82.3	2.0	5	78.4
Texas	10.9	36	59.3	12.7	29	41.0
Southern Plains	12.6	41	55.4	14.7	34	35.5
Montana	0.1	1	94.7	0.7	1	[2]100.0
Idaho	0.5	2	76.3	1.5	3	92.5
Wyoming	(0.1)	0	100.0	0.1	0	[2]100.0
Colorado	7.5	10	65.7	1.2	4	74.6
New Mexico	1.5	2	97.9	1.3	3	90.2
Arizona	1.7	4	86.7	0.2	1	81.0
Utah	0.5	1	79.7	1.0	2	80.6
Nevada	(0.1)	0	100.0	(0.1)	0	[2]100.0
Mountain	11.9	20	48.9	5.9	14	42.3
Washington	1.3	5	88.9	1.5	3	70.9
Oregon	0.4	1	81.0	0.8	4	84.3
California	8.1	37	20.1	5.7	24	36.1
Pacific	9.8	43	18.2	8.0	31	29.6
Alaska	—	—	—	—	—	—
Hawaii	0.1	1	[2]100.0	(0.1)	0	[2]100.0
United States	100.0	246	27.9	100.0	225	13.2

[1]Percentages based upon livestock purchases for slaughter, by State where slaughtered, excluding firms reporting less than 1,000 head of cattle or 2,000 head of all species. Slaughter plants were considered major if minimum purchases for slaughter were 10,000 head.

[2]Less than 4 firms included in percentage. (0.1) denotes value less than 0.05 percent.

Source: Packers and Stockyards Administration, USDA.

Appendix table 23—Hog and sheep and lamb slaughter as a percent of U.S. slaughter, number of major slaughter plants, and percent of slaughter by the 4 largest firms, by State, region, and the U.S., 1975[1]

State and region	Hogs			Sheep and lambs		
	Percent of U S	No of major plants	Percent by 4 firms	Percent of U S	No of major plants	Percent by 4 firms
New England	(0 1)	0	[2]100 0	(0 1)	0	[2]100 0
New York	0 5	2	99.7	0 6	0	[2]100 0
New Jersey	0 3	1	98 9	4.7	2	99 7
Pennsylvania	3 8	5	89.3	1 7	0	70 5
North Atlantic	4 6	8	80.8	7 1	2	78 1
Ohio	5 0	11	60 1	0 4	0	81 3
Indiana	4 3	6	93.4	0 1	0	[2]100 0
Illinois	6 4	9	80 2	5 1	1	99 7
Michigan	5 8	5	92 3	4 8	2	[2]100 0
Wisconsin	4 6	4	100 0	—	—	—
East North Central	26 1	35	40 1	10 4	3	92.0
Minnesota	6 5	4	100 0	2 3	1	[2]100.0
Iowa	23 5	21	50 5	2 8	1	[2]100 0
Missouri	3 5	3	95 3	0.2	0	[2]100 0
North Dakota	(0 1)	0	[2]100 0	—	—	—
South Dakota	3 0	3	100 0	4 2	1	[2]100.0
Nebraska	4 6	5	99 9	6.1	2	[2]100.0
Kansas	1.6	5	97 2	(0.1)	0	[2]100.0
West North Central	42.7	41	58.3	15.7	5	98 3
Delaware and Maryland	0.7	1	98 2	0.5	0	[2]100.0
Virginia	4.1	8	86 7	—	—	—
West Virginia	(0 1)	0	[2]100 0	—	—	—
North Carolina	2.3	4	87.5	—	—	—
South Carolina	0 4	1	91 9	—	—	—
Georgia	2.1	5	78 0	—	—	—
Florida	0 3	1	100.0	—	—	—
South Atlantic	9 9	20	45 8	0 5	0	[2]100 0
Kentucky	2 0	4	97 6	2 5	1	[2]100 0
Tennessee	4 4	9	59 4	—	—	—
Alabama	0 8	3	93 3	—	—	—
Mississippi	1 6	5		—	—	—
Arkansas	0 2	0		—	—	—
Louisiana	0 2	1		—	—	—
South Central	9 1	22	45.5	2.5	1	[2]100 0
Oklahoma	0 8	1	89 7	—	—	—
Texas	1.6	8	77.5	18 3	7	100.0
Southern Plains	2.4	9	70.3	18 3	7	100.0
Montana	0.4	1	99.6	—	—	—
Idaho	0.1	0	86 8	(0.1)	0	[2]100 0
Wyoming	(0 1)	0	[2]100 0	—	—	—
Colorado	0.9	2	100 0	19.3	3	[2]100 0
New Mexico	0.2	1	100.0	1 1	0	[2]100.0
Arizona	0.3	1	99 4	—	—	—
Utah	0.1	0	[2]100.0	1 9	1	100.0
Nevada	—	—	—	—	—	—
Mountain	2.0	5	79.5	22 4	4	97.2
Washington	0.9	3	98.9	2.9	1	[2]100.0
Oregon	0 2	1	95 1	0 4	0	[2]100 0
California	2 1	2	99.9	20.0	5	78.0
Pacific	3 3	6	89.3	23.3	6	68.4
Alaska	—	—	—	—	—	—
Hawaii	—	—	—	—	—	—
United States	100.0	146	33.4	100 0	28	58 1

[1]Percentages based upon livestock purchases for slaughter, by State where slaughtered, excluding firms reporting less than 1,000 head of cattle or 2,000 head of all species. Slaughter plants were considered major if minimum purchases were 50,000 hogs or 100,000 sheep and lambs.

[2]Less than 4 firms included in percentage. (0 1) denotes value less than 0 05 percent.

Source: Packers and Stockyards Administration, USDA.

Appendix table 24—Location and volume of cooperative commission agencies at terminal Markets, 1975

Region and State[1]	Terminal market	Total number of commission agencies	Cooperative commission agencies	Number and percent of livestock marketed by cooperatives				
				Cattle	Calves	Hogs	Sheep	Total[2]
East and East North Central								
New York	Buffalo	2	Empire Livestock					
Pennsylvania	Lancaster	8	None					
Maryland	Friendship	3	None					
Virginia	Richmond	2	Va Farm Bureau					
Ohio	Cincinnati	2	None					
Indiana	Indianapolis	7	Producers Mktg Assn					
	Evansville	2	Ohio Valley Producers					
Illinois	National Stockyards	13	Interstate Producers Farmers Livestock					
	Peoria	10	Interstate Producers					
	Springfield	2	Interstate Producers					
	Joliet	9	Farmers Union					
Wisconsin	Milwaukee	6	None					
Subtotal	12	66	9	299,000	14,300	1,099,100	51,500	692,600
Co-op share (percent)		14		16	7	32	49	21
West North Central								
Iowa	Sioux City	24	Producers Comm. Assn Progressive Farmer					
	Webster City	3	Producers Comm Assn					
Kansas	Wichita	2	None					
Minnesota	S St Paul	12	Central Livestock Farmers Union M&P					
Missouri	Joplin	4	None					
	Kansas City	12	Producers & Texas					
	Springfield	6	Farmers Livestock					
	St Joseph	13	Farmers Union Producers Livestock					
Nebraska	Omaha	28	Producers Livestock					
North Dakota	W. Fargo	5	Central Livestock Farmers Union M&P					
South Dakota	Sioux Falls	9	None					
Subtotal	11	118	12	1,233,500	70,600	1,559,600	372,800	1,917,200
Co-op share (percent)		10		19	29	20	30	20
South Central								
Kentucky	Louisville	5	Producers Livestock					
Tennessee	Memphis	4	None					
Oklahoma	Ft Smith	4	None					
	Hominy	4	None					
	Oklahoma City	15	National Livestock					
	Tulsa	5	None					
Texas	Ft Worth	8	None					
	San Antonio	7	Texas Livestock					
Subtotal	8	52	3	467,300	21,200	153,600	15,900	543,600
Co-op share (percent)	—	6	—	16	12	23	49	16

[1]No terminal stockyards in the Mountain and West Coast regions

[2]Total measured in animal units An animal unit = 1 head of cattle, 1 calf, 3 hogs, or 4 sheep

Source, Packers and Stockyards Administration, USDA.

Appendix table 25—Number and volume of cooperative auction markets, by region and State, 1975

Region and State	Number of auctions		Number of head handled by cooperatives			
	Total	Cooperative	Cattle and calves	Hogs	Sheep	Total[1]
Northeast						
New England	10	0				
Massachusetts	4	1				
New Jersey	8	2				
New York	37	11				
Pennsylvania	41	1				
Subtotal	100	15	336,037	61,620	28,133	363,609
Cooperative share (percent)		15	19	11	27	19
Southeast						
Delaware and Maryland	16	0				
Florida	21	0				
Georgia	68	1				
North Carolina	30	3				
South Carolina	19	1				
Virginia	40	0				
West Virginia	16	2				
Subtotal	210	7	80,122	71,519	13,721	107,390
Cooperative share (percent)		3	2	2	5	2
East North Central						
Illinois	56	1				
Indiana	40	11				
Michigan	30	7				
Ohio	41	14				
Wisconsin	35	20				
Subtotal	202	53	1,573,639	1,075,350	425,056	2,038,352
Cooperative share (percent)		26	41	29	29	38
East South Central						
Alabama	42	5				
Kentucky	48	0				
Mississippi	48	4				
Tennessee	66	0				
Subtotal	204	9	327,722	143,891	1,878	376,154
Cooperative share (percent)		4	6	7	3	6

—Continued

Appendix table 25—Number and volume of cooperative auction markets, by region and State, 1975-Continued

Region and State	Number of auctions		Number of head handled by cooperatives			
	Total	Cooperative	Cattle and calves	Hogs	Sheep	Total[1]
West North Central						
Iowa	115	3				
Kansas	82	0				
Minnesota	42	4				
Missouri	101	3				
Nebraska	79	1				
North Dakota	25	1				
South Dakota	49	0				
Subtotal	493	12	86,636	419,729	4,865	227,757
Cooperative share (percent)		2	1	5	0	1
West South Central						
Arkansas	48	0				
Louisiana	35	0				
Oklahoma	65	0				
Texas	168	0				
Subtotal	316	0	0	0	0	0
Cooperative share (percent)		0	0	0	0	0
Mountain						
Arizona	4	0				
Colorado	30	2				
Idaho	25	2				
Montana	18	0				
New Mexico	12	0				
Nevada	2	0				
Utah	12	2				
Wyoming	10	0				
Subtotal	113	6	455,767	24,078	48,264	475,858
Cooperative share (percent)		5	9	6	9	9
West Coast						
California	46	8				
Oregon	24	2				
Washington	24	0				
Subtotal	94	10	296,294	79,566	55,419	336,669
Cooperative share (percent)		11	12	28	19	13
United States						
Total	1,732	112	3,156,217	1,875,753	557,336	3,925,800
Cooperative share (percent)		6	7	9	11	7

[1]Total in animal units. An animal unit = 1 head of cattle, 1 calf, 3 hogs, or 4 sheep.
Source: Packers and Stockyards Administration, USDA.

Appendix table 26—Name, location, and species slaughtered by cooperative meatpacking plants, 1975

State	Cooperative	Plant location	Plants slaughtering	
			Cattle	Hogs
Colorado	High Country Pork Products	Grand Junction[1]		X
Georgia	Gold Kist Inc.	Newnan[1]		X
		Talmo	X	X
Iowa	Farmland Foods, Inc.	Denison		X
		Iowa Falls		X
Kansas	Farmland Foods, Inc.	Garden City	X	
Missouri	Missouri Farmers Assn. Packing Division	Springfield[1]	X	X
Nebraska	Farmland Foods, Inc.	Crete		X
Ohio	Landmark, Inc	Columbus		X
		Gallipolis	X	X
Virginia	Shen-Valley Meat Packers, Inc.	Timberville	X	X
Total cooperatives and plants	6	11	5	10
Cooperative share of U S. slaughter (percent)			0.8	2.3

[1]These plants were no longer operating as of Oct. 1, 1977.

Appendix table 27—Number and volume of all cooperative handling livestock, 1975

Region and State	Number of cooperatives[1]	Number of head handled by cooperatives			
		Cattle and calves	Hogs and pigs	Sheep and lambs	Total[2]
Northeast					
New England	0				
Massachusetts	1				
New Jersey	3				
New York	2				
Pennsylvania	8				
Subtotal	14	362,794	90,853	39,326	402,911
Cooperative share (percent)		19	8	26	17
Southeast					
Delaware	0				
Maryland	0				
Florida	0				
Georgia	3				
North Carolina	5				
South Carolina	2				
Virginia	3				
West Virginia	8				
Subtotal	20	130,007	411,777	37,413	276,618
Cooperative share (percent)		3	6	14	5
East North Central					
Illinois	5				
Indiana	9				
Michigan	6				
Ohio	2				
Wisconsin	6				
Subtotal	25	2,454,949	5,349,491	489,202	4,360,414
Cooperative share (percent)		44	25	60	34

—Continued

Appendix table 27—Number and volume of all cooperative handling livestock, 1975—Continued

Region and State	Number of cooperatives[1]	Number of head handled by cooperatives: Cattle and calves	Hogs and pigs	Sheep and lambs	Total[2]
East South Central					
Alabama	6				
Kentucky	2				
Mississippi	13				
Tennessee	0				
Subtotal	21	527,485	386,946	5,239	657,777
Cooperative share (percent)		10	9	9	9
West North Central					
Iowa	17				
Kansas	4				
Minnesota	4				
Missouri	10				
Nebraska	2				
North Dakota	3				
South Dakota	2				
Subtotal	30	2,819,098	4,870,849	519,835	4,572,674
Cooperative share (percent)		13	13	23	14
West South Central					
Arkansas	0				
Louisiana	0				
Oklahoma	1				
Texas	3				
Subtotal	4	410,946	203,498	23,101	484,554
Cooperative share (percent)		3	9	1	3
Mountain					
Arizona	1				
Colorado	3				
Idaho	4				
Montana	3				
New Mexico	0				
Nevada	0				
Utah	1				
Wyoming	1				
Subtotal	8	925,560	106,193	347,396	1,047,808
Cooperative share (percent)		10	10	8	9
West Coast					
California	2				
Oregon	4				
Washington	0				
Subtotal	5	526,124	113,457	149,162	602,234
Cooperative share (percent)		12	27	39	12
United States					
Cooperative total	120	8,156,963	11,533,064	1,610,674	12,403,990
Cooperative share (percent)		12	16	15	13

[1]The number of cooperatives in each State may not reflect country marketing operations of cooperatives headquartered in other States. Cooperatives that operate in more than one State are counted only once in the regional subtotal. Cooperatives that operate in more than one region are counted only once in the U.S. total

[2]Total in animal units. An animal unit = 1 head of cattle, 1 calf, 3 hogs, or 4 sheep.

OTHER PUBLICATIONS AVAILABLE

Cooperative Strategies for the Pork Industry. David L. Holder and Ralph E. Hepp. Marketing Research Report. 1978.

Cooperative Marketing Alternatives for Sheep and Lamb Producers. David L. Holder. Marketing Research Report 1081. 1977. 40 pp.

Contract Integrated, Cooperative Cattle Marketing System. Clement E. Ward. Marketing Research Report 1078. 1977. 28 pp.

Marketing Slaughter Cows and Calves in the Northeast. John T. Haas, Paul C. Wilkins, and James B. Roof. FCS Research Report 36. 1977. 52 pp.

Legal Phases of Farmer Cooperatives. Morrison Neely. FCS Information 100. Revised 1976. 747 pp. Available also in three parts: Part I—Sample Legal Documents; Part II—Federal Income Taxes; and Part III—Antitrust Laws.

The Need for Expanding Livestock Credit in the Southeast. R.L. Fox and L.L. Monroe. FCS Research Report 28. 1975. 28 pp.

Livestock Industry Trends: Implications for Cooperatives. G. Alvin Carpenter. FCS Information 92. 1973. 24 pp.

Livestock Cooperatives in the Southeast. John T. Haas. FCS Research Report 13. 1970. 32 pp.

How to Start a Cooperative. Irwin W. Rust. FCS Educational Circular 18. 1965. 18 pp.

For copies write: Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture, Room 550 GHI Building, 500 12th Street SW, Washington, D.C. 20250.

☆ U. S. GOVERNMENT PRINTING OFFICE 1978 720-308/3758